



THE CITY OF WINNIPEG

TENDER

TENDER NO. 104-2023

**CONSTRUCTION OF TRUNK AND LDS SEPARATION – COCKBURN &
CALROSSIE SEWER RELIEF (CONTRACT 9A)**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

- B1.1 CONSTRUCTION OF TRUNK AND LDS SEPARATION – COCKBURN & CALROSSIE SEWER RELIEF (CONTRACT 9A)

B2. SUBMISSION DEADLINE

- B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 21st, 2023.
- B2.2 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

- B3.1 Further to C3.1, the Bidder may view the Site without making an appointment.
- B3.2 The Bidder/Proponent is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid/Proposal or their performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D7.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Tender, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.
- B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Tender will be provided by the Contract Administrator to all Bidders by issuing an addendum.
- B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Tender will be provided by the Contract Administrator only to the Bidder who made the enquiry.
- B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.
- B4.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

B5. CONFIDENTIALITY

- B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:
- (a) was known to the Bidder before receipt hereof; or
 - (b) becomes publicly known other than through the Bidder; or
 - (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Tender to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Tender, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.3 Addenda will be available on the MERX website at www.merx.com.

B6.4 The Bidder is responsible for ensuring that they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6.6 Notwithstanding B4, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D7.

B7. SUBSTITUTES

B7.1 The Work is based on the Plant, Materials and methods specified in the Tender.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in their sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons they wish to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base their Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid/Proposal;
 - (b) Form B: Prices;
 - (c) Form G1: Bid Bond and Agreement to Bond.
- B8.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely.
- B8.3 The Bid shall be submitted electronically through MERX at www.merx.com.
- B8.3.1 Bids will **only** be accepted electronically through MERX.
- B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9. BID

- B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, their name shall be inserted;
 - (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
 - (d) if the Bidder is carrying on business under a name other than their own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

- B9.3 In Paragraph 3 of Form A: Bid/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder is a corporation, it shall be signed by their duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than their own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.
- B9.4.1 The name and official capacity of all individuals signing Form A: Bid/Proposal should be entered below such signatures.
- B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

- B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.
- B10.1.1 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D42. Any such costs shall be determined in accordance with D42.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B11. DISCLOSURE

- B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.
- B11.2 The Persons are:
- (a) N/A

B12. CONFLICT OF INTEREST AND GOOD FAITH

- B12.1** Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.
- B12.2** Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
 - (b) relationships;
 - (c) financial interests; or
 - (d) involvement in ongoing litigation;
- that could or would be seen to:
- (i) exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or
 - (ii) compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of their participation in the Tender process or the Work; or
 - (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.
- B12.3** In connection with their Bid, each entity identified in B12.2 shall:
- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
 - (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
 - (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.
- B12.4** Without limiting B12.3, the City may, in their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.
- B12.5** Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in their sole discretion:
- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their employees proposed for the Work;
 - (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in their sole discretion, determines cannot be avoided or mitigated;
 - (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and

- (d) disqualify a Bidder if the Bidder, or one of their employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B12.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B13. QUALIFICATION

B13.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>

B13.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.5 and D9)
- (e) upon request of the Contract Administrator, provide the Security Clearances in accordance with PART F - ;
- (f) Operator of any tunnelling equipment used for Trenchless Sewer Installation has a minimum of three previously completed successful projects operating the same equipment.**
 - (i) Prior to commencement of any tunnelling works, the Contractor to submit the qualifications to the Contract Administrator.**

B13.4 Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
 - (i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety

Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

- (b) a report or letter to that effect from an independent reviewer acceptable to the City. A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>.

- B13.5 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B13.6 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B13.7 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B14. BID SECURITY

- B14.1 The Bidder shall include in their Bid Submission bid security in the form of a digital bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Materials Management Division website at <https://www.winnipeg.ca/MatMgt/templates/files/eBidsecurity.pdf>.
- B14.2 Bid security shall be submitted in a digital format meeting the following criteria:
- (a) The version submitted by the Bidder must have valid digital signatures and seals;
 - (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
 - (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
 - (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
 - (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B14.2(a).
- B14.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B18.1(a).
- B14.4 Bonds passing the verification process will be treated as original and authentic.
- B14.4.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.
- B14.5 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B14.6 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Tender.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

- B15.1 Bids will not be opened publicly.
- B15.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated and pending review and verification of conformance with requirements) will be available on the MERX website at www.merx.com.
- B15.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at www.merx.com.
- B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16. IRREVOCABLE BID

- B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B16.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly formed and the contract securities have been furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid/Proposal.

B17. WITHDRAWAL OF BIDS

- B17.1 A Bidder may withdraw their Bid without penalty at any time prior to the Submission Deadline.

B18. EVALUATION OF BIDS

- B18.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
 - (c) Evaluated Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B7.
- B18.2 Further to B18.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in their Bid or in other information required to be submitted, that they are qualified.
- B18.4 Further to B18.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B18.4.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

- B18.4.2 Further to B18.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.
- B18.4.3 Further to B18.1(c), the Total Bid Price shall include Site Occupancy Costs and Daily Equipment Costs as shown on Form B: Prices. Site Occupancy Costs shall be the Initial Span bid in the Working Days, multiplied by the Site Occupancy Unit Price listed in Form B: Prices. Daily Equipment Costs are formulated as described in E31.

B19. AWARD OF CONTRACT

- B19.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B19.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be qualified, and the Bids are determined to be responsive.
- B19.2.1 Without limiting the generality of B19.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with their own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B19.3 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D42 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.
- B19.4 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B18.
- B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of their Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2020-01-31) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. FORM OF CONTRACT DOCUMENTS

D2.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

D3. BACKGROUND AND PROJECT INFORMATION

D3.1 The Cockburn Combined Sewer Relief project is part of the City's Combined Sewer Overflow (CSO) program and will provide complete sewer separation to the western part of the Cockburn combined sewer district and the southern portion of the Jessie combined sewer district by the installation of a Land Drainage Sewer (LDS) system.

D3.2 The existing combined sewers in the project area convey both wastewater and foundation drainage from sanitary services and storm water from catch basins in the single pipe system. The design objective for this project is to improve the level of service by redirecting the storm water from road drainage to a new land drainage system. It is imperative that both the sanitary and storm services be maintained during construction, and in particular that the level of basement flooding protection not be negatively impacted during construction.

D3.3 The Cockburn Sewer Relief project as a whole is being completed in a series of construction contracts. The current Tender (104-2023), referred to as Contract 9A, includes:

- (a) The trunk sewer and LDS separation extending from the stub out of Contract 5 (west of Taylor Avenue and Wilton Street intersection), continuing west on Taylor Avenue to Poseidon Bay, will pick up all existing land drainage inlets on Taylor Avenue.
- (b) Additional short LDS laterals to be installed on Nathaniel Street (north of Taylor Avenue) and Poseidon Bay (north of Taylor Avenue) within the limits of the two intersections and leaving lateral stubs for future contracts to connect to.

D3.4 **The existing 2,400 mm concrete LDS being connected to at Wilton Street and Taylor Avenue is operational and charged with water to the approximate elevation of 227.7 m.** The 227.7 m water level is maintained by a weir in the storm retention basin (SRB) located in the Parker lands south of the CN Rail line. The SRB support flows that must be maintained from all completed Cockburn contracts north of the SRB including C4, C5, C6A & B, C10A, C11, and C12, as well as C7 which is under construction. Information on these contracts is available on the City of Winnipeg Materials Management website. During and following rain events, the water level in the existing LDS system will become elevated above 227.7 m. The Contractor will be required to provide temporary plugs to facilitate their work and maintain the water level (as defined within E14).

- (a) There is one connection to the existing LDS as part of this project.
 - (i) Taylor Ave. west of Wilton Street – Connection to 2,400 mm Stub
- (b) The east extent of the new 1,800 mm LDS on Taylor Avenue will be connected to the existing 2,400 mm concrete stub that was constructed as part of Contract 5 (Bid 1067-2018B), with a 2400 x 1800 mm reducer and concrete collar connection. The existing stub was capped with a cast in place reinforced concrete plug to permit operations of the system following Contract 5. This plug is not intended to provide support of the water level during excavation associated with the connection to the new 1,800 mm LDS. The plug will

need to be removed in conjunction with the Contractors installation of their Temporary Plug that support the Work in Contract 9A. The following additional information is included in Appendix A associated with the planned connection:

- (i) Shop Drawings for the 2,400 mm stub.
- (ii) Photo of the 2,400 mm stub connection from within Manhole 42 (before system was active)
- (iii) Shop drawing for the 8,800 mm diameter Manhole Chamber 42 designed by Contractor from Contract 5 (installed at Wilton Street and Taylor Avenue intersection.
- (iv) Photos of existing temporary plug.

D3.5 A Combined Sewer Crossing Structure is required for the new LDS to get under the existing 750 mm combined sewer west of Nathaniel Street. This is being achieved with the installation of a concrete box culvert connected to two precast rectangular concrete manholes referred to as MH – 211 and MH – 212 (see Drawings).

(a) This work must occur during the dry weather flow periods (November 1 - March 1).

(b) Flows within the existing 750 mm combined sewer must be maintained throughout construction. See additional temporary flow control requirements in Specification E29.

D3.6 Construction staging is required to maintain traffic flows on Taylor Avenue and the adjacent streets, as well as access to the commercial and residential developments along the project Site. A construction staging plan has been developed for this project (see D35 and the Traffic Management Plan in Appendix C).

D3.7 Road works at the east end of Taylor Avenue (about 20 m east of Harrow Ave up to Pembina Hwy) will be ongoing during this project. The Contractor shall pay special attention to the traffic management section (E9) that has been developed in coordination with the Public Works Department to support the regional traffic flows and active transportation pathways.

D4. SCOPE OF WORK

D4.1 The Work to be done under the Contract shall consist of the installation of a new land drainage sewer system and the connection of land drainage inlets to the new sewer. The complete scope is described within the applicable Specifications and Drawings

D4.2 The major components of the Work are as follows:

- (a) Construction of land drainage sewers ranging in size from 1,050 mm to 1,800 mm diameter by trenchless installation methods;
- (b) Construction of a Combined Sewer Crossing Structure including big box manholes and a box culvert to cross underneath an existing 750 mm combined sewer near Taylor Avenue and Nathaniel Street;
- (c) Construction of catch basin leads by trenchless installation methods;
- (d) Relocation (temporary or permanent) of existing utilities and regrading of existing sewer and water services (as required) to permit the installation of the new LDS sewers, manholes and associated construction shafts;
- (e) Installation of new manholes;
- (f) Abandonment of existing catch basins connections to combined sewers;
- (g) Connection of existing catch basins and catch basin leads to new land drainage sewers; and
- (h) Surface restoration and related works.

D4.3 The following shall apply to the Work:

- (a) Universal Design Policy

<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604>

D5. SITE INVESTIGATION DUE DILIGENCE AND RISK

D5.1 Notwithstanding C3.1, the Contractor acknowledges that the site investigation reports and other site information included in this Tender have been provided to it and may be relied upon by the Contractor to the extent that the Contractor uses Good Industry Practice in interpreting such report(s) and site information and carries out the Work in accordance with Good Industry Practice based upon such report(s) and the information contained in them and such other site information. In the event that a site condition related to:

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect the performance of the Work;

that could not have been “properly inferable”, “readily apparent” and readily discoverable” using Good Industry Practice by the Contractor, results in additional Work which is a direct result of this newly discovered site condition, such additional Work will be considered by the City under Changes in Work.

D6. DEFINITIONS

D6.1 When used in this Tender:

- (a) “**Charged Day**” means the unit of measurement of time for Site Occupancy. For purposes of assessing Charged Days, a Charged Day will be equivalent to a Working Day as defined in C1.1 (tt) and amended in D23;
- (b) “**Controlled Low Strength Material (CLSM)**” means is cement stabilized fill, as per CW 2160;
- (c) “**Final Span**” means the number of Charged Days assessed for Site Occupancy as calculated pursuant to D26.3;
- (d) “**Initial Span**” means the number of Working Days bid by the Contractor for Site Occupancy;
- (e) “**Jacking Pipe**” means a reinforced concrete pipe jacked behind a TBM. The Jacking Pipe shall be specifically designed to be installed by Pipe Jacking to support the anticipated loading;
- (f) “**Pipe Jacking**” means a guided, steerable process that uses a Tunnel Boring Machine jacked at the leading end of a string of Jacking Pipe from a launch shaft to a receiving shaft;
- (g) “**Site Occupancy**” means a system for monitoring and administering progress of the Work. Site Occupancy involves the Contract Administrator setting a completion date for the Work along with a daily Contract administration cost (Site Occupancy cost) for each Working Day the Contractor is able to Work. The Contractor bids the number of anticipated Working Days to complete the Work, and depending on the actual Working Days to complete the Work, there may be a bonus payment or deduction applied to the final payment;

- (h) **“Tunnel Boring Machine”** The use of a tunnelling shield advanced below grade to provide continuous excavation support. Excavation operations are performed from within the shield. Soil excavation can be achieved by means of a rotating cutter-wheel, small excavator, and at time hand mining. Excavated soil is discharged to a conveyor or muck cart where it is transported to the ground surface for disposal;
- (i) **“Tunnelling”**: Means the trenchless construction method used to install pipelines using a Tunnel Boring Machine and/or Pipe Jacking and/or Two Pass Tunnelling;
- (j) **“Two-Pass Tunnelling”** means the process of Tunnelling to install Excavation Support, installing Carrier Pipe within the Excavation Support, and filling all voids between the Excavation Support and the carrier point with grout.

D7. CONTRACT ADMINISTRATOR

D7.1 The Contract Administrator is KGS GROUP, represented by:

John Minkevich, B.Sc., P.Eng.
Municipal Project Manager

Telephone No. 204-896-1209
Email Address jminkevich@kgsgroup.com

D7.2 At the pre-construction meeting, John Minkevich will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D8. CONTRACTOR'S SUPERVISOR

D8.1 At the pre-construction meeting, the Contractor shall identify their designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D9. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D9.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation (“CSSR”) to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.

D9.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg's behalf, shall comply with all obligations under the AMA applicable to public sector bodies.

D9.1.2 The accessible customer service obligations include, but are not limited to:

- (a) providing barrier-free access to goods and services;
- (b) providing reasonable accommodations;
- (c) reasonably accommodating assistive devices, support persons, and support animals;
- (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators;
- (e) inform the public when accessibility features are not available;
- (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
- (g) providing adequate training of staff and documentation of same.

D10. UNFAIR LABOUR PRACTICES

- D10.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) <https://www.un.org/en/about-us/universal-declaration-of-human-rights> International Labour Organization (ILO) [https://www.ilo.org/global/lang--en/index.htm](https://www.ilo.org/global/lang-en/index.htm) conventions as ratified by Canada.
- D10.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.
- D10.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).
- D10.4 Failure to provide the evidence required under D10.3, may be determined to be an event of default in accordance with C18.
- D10.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing ("Unfair Labour Practice Penalty"). Such a violation shall also be considered an Event of Default, and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.
- D10.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor's violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City's reputation in the eyes of the public as a result of same.
- D10.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with clause D10.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.
- D10.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract, and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D11. FURNISHING OF DOCUMENTS

- D11.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D12. AUTHORITY TO CARRY ON BUSINESS

- D12.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on

business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D13. SAFE WORK PLAN

- D13.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D13.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>
- D13.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

D14. INSURANCE

- D14.1 The City shall provide and maintain the following owner-controlled insurance coverage to remain in place at all times during the performance of the Work:
- (a) wrap up liability insurance, in the amount of at least ten million dollars (\$10,000,000.00) inclusive. The insured parties shall include the City, Contractor and all subcontractor whether named or unnamed in the policy and all others having an insurable interest in the Work. Wrap up liability insurance to include but not limited to
 - (i) products and completed operations
 - (ii) blanket contractual liability
 - (iii) unlicensed motor vehicle liability,
 - (iv) sudden and accidental pollution liability as per IBC 2313 or similar) (120 hour),
 - (v) City and Contractors protective coverage
 - (vi) blasting, tunneling or the removal or weakening of support of any land, whether such support be natural or otherwise,
 - (vii) no XCU exclusion,
 - (viii) cross liability clauses
 - (ix) non-owned automobile liability
 - (b) Wrap up liability insurance shall be maintained from the date of the commencement of the Work until the date of Total Performance of the Work and shall include an additional twenty-four months completed operations coverage that will take affect after Total Performance. .
 - (c) The City reserves the right to add, delete, revise and redefine insurance requirements and deductibles at any time, at its sole discretion, or as necessitated by the placement, extensions/renewals of the insurance policy, during the term of the Project.
- D14.2 Deductibles under the policy not to exceed \$50,000 maximum of any one loss and shall be borne by the Contractor;
- D14.3 The Contractor shall provide and maintain the following insurance coverage at all times during the performance of the Work and throughout the warranty period:
- (a) commercial general liability insurance, in the minimum amount of five million dollars (\$5,000,000) inclusive per occurrence and five million dollars (\$5,000,000) general aggregate. The said insurance shall include coverage for products and completed operations, blanket contractual, contractors protective, sudden and accidental pollution, non-owned automobile, unlicensed motor vehicle liability, a cross liability clause and shall

not contain any XCU exclusions or limitations and will add the City as an additional insured.

- (b) automobile liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The limit of liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident.
- (c) an all-risks Installation Floater carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- (d) all risks property insurance for all equipment, including any tunnelling and trenchless sewer installation equipment, and tools used on the Project that may be owned, rented, leased or borrowed.

D14.4 Deductibles shall be borne by the Contractor.

D14.5 All policies shall be taken out with insurers licensed in the Province of Manitoba.

D14.6 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, as applicable.

D14.7 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D14.8 The Contractor will be required to cooperate with the City and provide their project experience and project claims history and any other information necessary to obtain the owner-controlled project insurance as outlined in D14.1 (a) and (b) within five (5) business days after request.

D15. CONTRACT SECURITY

D15.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; and
- (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.

D15.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D15.1(b).

- D15.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.
- D15.1.3 Digital bonds passing the verification process will be treated as original and authentic.
- D15.2 The Contractor shall provide the Contract Administrator identified in D7 with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D15.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:
- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D15.1(b); and
 - (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

D16. SUBCONTRACTOR LIST

- D16.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract Documents, if applicable.

D17. REQUIREMENTS FOR SITE ACCESSIBILITY PLAN

- D17.1 The Contractor shall provide the Contract Administrator with an Accessibility Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, if applicable.
- D17.2 The Accessibility Plan shall demonstrate how the Contractor will accommodate the safe passage of pedestrians and cyclists in accordance with the Manual of Temporary Traffic Control, the Contract Drawings, Staging Plans, and Streets By-Law No. 1481/77 at all times for the duration of the Construction. Unless noted in the Contract, the Accessibility Plan must include a written plan for the following:
- (a) How the Contractor will maintain at least one crossing in each direction for each intersection (one north/south crosswalk and one east/west crosswalk).
 - (b) How the Contractor will maintain access to bus stops within the site.
 - (c) How the Contractor will maintain access to pedestrian corridors and half signals.
 - (d) How the Contractor will maintain cycling facilities.
 - (e) How the Contractor will maintain access to residents and businesses unless otherwise noted in the Contract.
 - (f) Any required detour signage at adjacent crossings to facilitate sidewalk or active transportation pathway closures.
- D17.3 The Accessibility Plan may also include figures, sketches, or drawings to demonstrate the proposed plan.
- D17.4 The Accessibility Plan shall include written details on how the Contractor intends to review, maintain, and document all items related to the Accessibility Plan on-site during Construction, including, but not limited to:
- (a) Signage

- (b) Temporary Ramping
- (c) Transit Stops
- (d) Detour Signage

- D17.5 At minimum, the Contractor shall review the site conditions on a daily basis to ensure that all features related to the Accessibility Plan are in place. The site review is intended to correct deficiencies as a result of unforeseen events such as wind, traffic, or the general public. Deficiencies that are direct result of the Contractors actions must be corrected immediately.
- D17.6 Any changes to the Accessibility Plan must be approved by the Contract Administrator.
- D17.7 Upon request from the Contract Administrator, the Contractor shall provide records demonstrating that the site has been maintained.
- D17.8 Deficiencies as a direct result of actions by the Contractor that are not immediately corrected and/or failure to produce records that demonstrate that the site was maintained in compliance with the Accessibility Plan may result in a pay adjustment via the monthly Progress Payment. The rate of pay adjustment will be as per the following schedule:
- (a) First Offence – A warning will be issued and documented in the weekly or bi-weekly site meeting.
 - (b) Second Offence – A field instruction to immediately correct the site will be issued by the Contract Administrator.
- D17.9 Third and subsequent Offences – A pay reduction will be issued in the amount of \$250.00 per instance and per day.

D18. DETAILED WORK SCHEDULE

- D18.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in the General Conditions for the return of the executed Contract.
- D18.2 The detailed work schedule shall consist of the following:
- (a) A critical path method (CPM) schedule for the Work; and
 - (b) A Gantt chart for the Work based on the CPM schedule; as acceptable by the Contract Administrator.
- D18.3 Further to D18.2(a), the CPM schedule shall clearly identify start and completion dates of the following Work items:
- (a) Commencement Date
 - (b) Sequence of Work
 - (c) A breakdown of Work activities as listed below:
 - (i) Shaft Construction
 - (ii) LDS Sewer installation (each drive, Manhole to Manhole segment)
 - (iii) Sewer Separation (Connection of Drainage Inlets, LDS sewers)
 - (iv) Manhole Installations
 - (v) Surface Restorations
 - (d) Substantial Performance
 - (e) Total Performance
- D18.4 Further to D18.2(b), the Gantt chart shall, on a weekly basis, show the time required to carry out the Work of each trade or specification division. Time shall be on the horizontal axis and the type of trade shall be on the vertical axis. The Gantt chart shall have horizontal lines extending across the entire chart to allow for easier reading of the schedule.

D18.5 The Contractor shall update the schedule to the Contract Administrator prior to each weekly construction site meeting for review and discussion at the meetings.

D19. DEWATERING AND DRAINAGE PLAN

D19.1 In addition to C6, the Contractor is solely responsible for planning, implementing, maintaining and monitoring an effective dewatering and drainage system for the Site during performance of the Work.

D19.2 The Contractor is responsible for the control, diversion, storage and pumping of all water and wastewater including and without limitation of rain, snow melt, groundwater, leaking infrastructure and water and wastewater in pipes throughout all stages of the Work.

D19.3 The Contractor will be responsible for installing and maintaining whatever temporary means (e.g. plugs, weirs, pumping, etc.) throughout construction necessary to support the Work.

D19.4 The Contractor shall submit a Dewatering and Drainage Plan to the Contract Administrator at least five (5) Calendar Days prior to commencement of Work at the Site. The Contractor must obtain approval of the Dewatering and Drainage Plan prior to implementation. If changes are made to the dewatering plan during construction, the Contractor shall submit these changes to the Contract Administrator for approval in advance of implementation of the changes. The Dewatering and Drainage Plan submittal shall include the following at a minimum:

- (a) A sketch or sketches of the Site clearly showing the methods of controlling flows including temporary and permanent features, pipe route and layout, plug, weir and pump locations, storage elements, or any other elements used to support the anticipated flows during construction;
- (b) information for all pipe used including material, diameter, length, fittings, connections, restraints, blocking, protection features;
- (c) monitoring and maintenance plan including Contractor's designated contact person responsible for dewatering and drainage, inspection intervals and means for supervising and monitoring pumping activity;
- (d) pump sizes, pump power source, and noise attenuation features (to be less than 65 dBa), pump power source; and
- (e) any other related information reasonably requested by the Contract Administrator.

D19.5 Do not pump or drain any water containing excessive suspended materials or harmful substances into waterways, sewers or other drainage systems. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing authority's limitations and requirements.

D19.6 The Contractor shall be responsible for all damages within or outside the Site directly resultant from Contractor's actions, omissions or neglect which may be caused by or which may result from water backing up, flowing through, overflowing or excessive surcharge of drainage or sanitary systems.

D19.7 The Contractor shall organize and bear all costs related to the effective dewatering of excavations and all other pumping and drainage necessary for the proper execution of the Work, including keeping the pipes, structures, shafts, excavations and trenches free of undesirable accumulations of groundwater, seepage, surface water, melt water or rainwater.

D19.8 All dewatering equipment and discharge hoses shall be protected from freezing and shall remain fully operational in freezing weather.

D19.9 The Contractor shall dispose of all water drained or pumped as above by discharging it to sewers, drainage ditches or natural water course as reviewed by the Contract Administrator, and in compliance with all local, Municipal, Provincial and Federal environmental regulations, ordinances, bylaws, etc., and provide documentation indicating that authority has been granted to discharge these flows.

D19.10 Dewatering and drainage during construction will be considered incidental to Site Development and Restoration.

SCHEDULE OF WORK

D20. COMMENCEMENT

D20.1 The Contractor shall not commence any Work until they are in receipt of an award letter from the Award Authority authorizing the commencement of the Work.

D20.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D12;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D13;
 - (iv) evidence of the insurance specified in D14;
 - (v) the contract security specified in D15;
 - (vi) the Subcontractor list specified in D16;
 - (vii) the Requirements for Site Accessibility Plan specified in D17;
 - (viii) the direct deposit application form specified in D38
 - (ix) the Detailed Work Schedule specified in D18;
 - (x) the Dewatering and Drainage Plan specified in D19; and
 - (xi) the Contractors Signage Plan associated with the traffic control plan specified in D35.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D20.3 The Contractor shall commence the Work on the Site no later than the date of Substantial Performance less the number of Working Days bid as Initial Span for Site Occupancy. For purposes of establishing this date, Working Days will be applied assuming five (5) Working Days per calendar week, and not including Statutory Holidays. If the Contractor has not commenced work by this date, Working Days will be assessed for each day following this date, at the rate of five (5) Working Days per calendar week, not including Statutory Holidays.

D21. SEQUENCE OF WORK

D21.1 Three separate phases have been developed for the Work to ensure continued traffic flows along Taylor Avenue (See Appendix C).

D21.2 Phases 1 and 2 have been developed to support the new LDS sewer installation on Taylor Avenue as described below:

- (a) Phase 1 – To facilitate the 1,800 mm installation along Taylor Avenue from the Combined Sewer Crossing Structure east to Wilton Street.
- (b) Phase 2 – To facilitate the 1,800 mm and 1,200 mm installation along Taylor Avenue from the Combined Sewer Crossing Structure west to Poseidon Street.
 - (i) A sub-phase 2B is also presented to support the stub connection to Poseidon Bay from MH 216. The work on Phase 2B may not occur until all of the work in Phase 2 is completed to ensure access to Poseidon Bay. The Phase 2B Work shall be limited to three (3) weeks.
- (c) The Contractor may determine which of Phase 1 or 2 to complete first. Work on these phases cannot occur concurrently.

D21.3 A third phase (Phase 3) is also presented in Appendix C to support the future connection to an LDS pipe stub on Nathaniel Street as well as connection to the existing 2,400 mm LDS on

Taylor Avenue, west of Wilton Street. The Work on Phase 3 tasks shall be limited to four (4) weeks.

(a) Contractor's Detailed Work Schedule must include the timelines for the work described herein.

D21.4 Regional traffic flows on Taylor Avenue will be modified for each Phase. See the traffic management section (E9) for more details.

(a) The Contractor will be responsible to provide temporary signs to support traffic flows for each phase in accordance with the City of Winnipeg Manual of Temporary Traffic Control.

(b) The Contractor will be responsible to provide temporary signs to support active transportation flows in accordance with the City of Winnipeg Manual of Temporary Traffic Control.

D21.5 The following additional considerations must also be adhered to by the contractor.

(a) Access to back lanes must be maintained for refuse removal and residential access to properties unless otherwise noted on the Drawings.

D21.6 **Construction of the Combined Sewer Crossing Structure shall occur during the dry weather flow period (between Nov 1 and March 1)** to ensure control of the combined flows in the existing 750 mm combined sewer.

D22. WORK BY OTHERS

D22.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractor's execution of Work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D22.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) MB Hydro;
- (b) Traffic Signal Operation - City of Winnipeg;
- (c) MTS, Bell, Shaw, etc.

D22.2.1 Further to D22.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D22.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work

D22.2.2 Instructions to Contractor for temporary relocation of light standards by MB Hydro

For coordinating the temporary removal of light standards during construction before scheduling the work the Contractor shall fill out and submit a work request form with a bar code of the light standard referenced in the form and location map of the light standard. See below a list of information required by MB Hydro:

- (a) Date the light standard can be reinstalled.
- (b) Completed work request form (WRAPA)
- (c) Copy of locates.
- (d) Site contact (and alternate) with phone numbers

D23. WORKING DAYS

D23.1 Notwithstanding C1.1(tt), a Working Day includes a Saturday, Sunday, or a statutory or civic holiday when the Contractor chooses to undertake Work requiring the presence of the Contract Administrator and/or City resources.

- D23.2 Notwithstanding C1.1(tt), a Working Day on Saturdays, Sundays and statutory holidays will be from 09:00 to 19:00. If a Contractor wished to commence work earlier than 09:00 on Saturdays, Sundays and statutory holidays a noise by-law exemption to the neighbourhood livability by-law must be applied for, approved, and in place. For the purposes of bidding, the bidder shall assume that Work may not commence until after 09:00 on weekends and statutory or civic holidays.
- D23.3 Further to C1.1(tt), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of Work while at another time a Working Day may be based on another type of work. When more than one type of major Work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.
- D23.4 In the event that incidental Work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following Work of a major type, the City hereby reserves the right to charge Working Days on the incidental Work until such time as it is up to schedule.
- D23.5 When the major type of Work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.
- D23.6 The Contract Administrator will identify the Working Days charged during the regular site meetings.

D24. SUBSTANTIAL PERFORMANCE

- D24.1 The Contractor shall achieve Substantial Performance by May 15, 2024.
- D24.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D24.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.
- D24.4 Substantial Performance will be achieved once all new LDS works are installed and the system is meeting its intended use.

D25. TOTAL PERFORMANCE

- D25.1 The Contractor shall achieve Total Performance by June 30, 2024.
- D25.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D25.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D26. SITE OCCUPANCY

- D26.1 Definitions

D26.1.1 Wherever the following terms are used, the intent and meaning will be interpreted as follows:

- (a) **Charged Days:** Means the unit of measurement for time of Site Occupancy. For the purpose of assessing Charged Days, a Charged Day will be equivalent to a Working Day as defined in C1.1 (tt) and amended in D23.
- (b) **Initial Span:** Means the number of Charged Days bid by the Contractor for Site Occupancy on Form B: Prices.
- (c) **Final Span:** Means the number of Charged Days assessed for Site Occupancy as calculated pursuant to D26.2.1.

D26.2 Measurement

D26.2.1 Time shall be of the essence of the Contract. The Contractor shall provide the necessary material, labour and equipment to ensure that the Works will be completed within the consecutive amount of Working Days bid for Initial Span for Site Occupancy, and in no case later than the date specified for **Substantial Performance** for all Work excluding permanent restoration. Failure to complete the Work within the Bid number of Working Days will result in the deduction of Site Occupancy costs, as further defined herein. The total amount of Working Days will be measured in whole numbers.

D26.2.2 Charged Days will be assessed for every day except for the following:

- (b) Days prior to the Contractor starting Work on a stage of the Contract. The Contractor shall provide a minimum of fourteen (14) Calendar Days' notice to the City for Commencement of the Work. Failure of the Contractor to Commence Work as indicated, in the opinion of the Contract Administrator, may result in the assessment of Working Days equivalent to the estimated costs incurred to the City;
- (c) Days not worked due to Force Majeure.
- (d) Days between Substantial Performance and the date the City authorizes that permanent pavement works may commence, should the date of Substantial Performance be achieved at a time when permanent pavement works has been suspended as a result of inclement seasonal weather.

D26.2.3 Should Substantial Performance be achieved at a date when permanent restorations can take place, Charged Days will be assessed until such time that permanent restorations are suspended.

D26.2.4 Further to D26.2.2, following Commencement, the Contractor will be permitted one (1) suspension of on-site construction, for a period of no more than two (2) weeks, to facilitate coordination of Subcontractors, materials deliveries, construction sequencing, or seasonal weather; Charged Days will not be charged during this period. During this period, the Site must be made secure, roadways completely operational, and all existing facilities and work in progress be protected from weather or other potentially harmful effects. Changes to Contract completion dates resulting from suspension of Charged Days, will not be considered.

D26.3 Final Span

D26.3.1 Extensions to the Initial Span will determine the Final Span and will be calculated as follows:

- (a) $\text{Final Span} = (F \div A) \times I$
- (b) Where: Final Span = adjusted number of Charged Days allowed (a fraction of a day will be rounded up to a full day);
 - (i) F = Final Contract Amount (excluding Site Occupancy).
 - (ii) I = Initial Span of the Contract
 - (iii) A = Total amount at Award (excluding Site Occupancy and Provisional Items)

D26.4 Site Occupancy Payment

D26.4.1 Payment for Site Occupancy for the Contract will be made as follows:

- (b) If the number of Charged Days equals the Final Span, no payment or deduction will be made.
- (c) If the number of Charged Days is less than the Final Span, a payment equal to the Contract Unit Price per Charged Day multiplied by the difference between the Initial Span and the actual number of Charged Days, to a maximum amount of two percent (2%) of the Total Bid Price, will be made to the Contractor.
- (d) If the number of Charged Days exceeds the Final Span, a deduction equal to the Contract Unit Price per Charged Day multiplied by the difference between the actual number of Charged Days and the Initial Span will be made from the payment to the Contractor.

D27. LIQUIDATED DAMAGES

- D27.1 If the Contractor fails to achieve Total Performance in accordance with the Contract by the day fixed herein for Total Performance, the Contractor shall pay the City one thousand five hundred dollars (\$1,500) per Working Day for each and every Working Day following the day fixed herein for Total Performance during which such failure continues.
- D27.2 The amount specified for liquidated damages in D27.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Total Performance by the day fixed herein for same.
- D27.3 Note that any liquidated damages associated with Total Performance shall be evaluated independently from Site Occupancy Charged Days.
- D27.4 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D28. COVID-19 SCHEDULE DELAYS

- D28.1 The City acknowledges that the schedule for this Contract may be impacted by the COVID-19 pandemic. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the health and safety of workers and the public, directives from health authorities and various levels of government and in close consultation with the Contract Administrator.
- D28.2 If the Contractor is delayed in the performance of the Work by reason of the COVID-19 pandemic, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.
- D28.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether COVID-19 will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to COVID-19, including but not limited to evidence related to availability of staff, availability of Material or work by others.
- D28.4 For any delay related to COVID-19 and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D28.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D28.5 The Work schedule, including the durations identified in D24 to D25 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.
- D28.6 Where Work not previously identified is being carried over solely as a result of delays related to COVID-19, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to COVID-19, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.

D28.7 Any time or cost implications as a result of COVID-19 and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

CONTROL OF WORK

D29. JOB MEETINGS

D29.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D29.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D30. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D30.1 Further to C6.26, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D31. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D31.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

D32. WORK IN PROXIMITY TO LARGE NATURAL GAS MAINS

D32.1 The Contractor should be familiar with and comply with the requirements of the latest revision of Manitoba Hydro's "Safe Excavation & Safety Watch Guidelines". This document is available at: https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf

D32.2 Work precautions and procedures required for working near gas mains will be incidental to the Contract.

D33. CONFINED SPACE ENTRY

D33.1 The Contractor's attention is drawn to the Province of Manitoba Workplace Safety and Health Act ("the Act"), and the Regulations and Guidelines there-under pertaining to Confined Entry Work, and in particular the requirements for conducting hazard/risk assessment and providing personal protective equipment (PPE).

D33.2 The Contractor shall assist and provide Supplied Air Breathing Apparatus conforming to the requirements of the Act, Regulations and Guidelines for the use of the Contract Administrator where confined entry is required to allow for inspection of the Work.

D34. PEDESTRIAN SAFETY

D34.1 Further to clause 3.6 of CW 1130:

- (a) The Contractor shall maintain a closed Site around all Work elements to restrict pedestrian and vehicular access. Temporary fencing or an alternative as approved by the Contract Administrator shall be installed at all open excavations, trench cages, cans and shafts for the project duration in accordance with Provincial requirements.

- (b) The Contractor shall be responsible for maintaining fencing in a proper working condition at all times. Pedestrian Safety requirements shall be incidental to Site Development and Restoration.

D35. TRAFFIC CONTROL

D35.1 Further to clause 3.7 of CW 1130:

- (a) The Contractor shall make arrangements to place temporary regulatory signs. The Contractor shall bear all costs associated with the placement of temporary traffic control devices required to complete the Work.
 - (i) The Contractor shall submit a signage and phasing plan to be reviewed and approved by the Contract Administrator and the City of Winnipeg Public Works Department in accordance with the Manual of Temporary Traffic Control.
- (b) The Contractor shall not interfere with traffic signals. Any modification of traffic signals shall be done by City of Winnipeg Traffic Signals.
 - (i) One month notice is required to facilitate traffic signal modifications.
- (c) The Contractor shall make arrangements with Winnipeg Transit for Work that impacts Transit routes or stops.
- (d) The City of Winnipeg Manual of Temporary Traffic Control on City Streets is available online at:
 - (i) <http://winnipeg.ca/publicworks/trafficControl/manualTempTrafficControl.stm>

D35.2 Additional traffic management requirements are outlined in E9.

MEASUREMENT AND PAYMENT

D36. WATER USE

D36.1 The Contractor is responsible for obtaining City permits and paying for any charges associated with temporary water meters and water use. This includes, but not limited to, filling new LDS infrastructure with water prior to removal of temporary plugs.

D37. INVOICES

D37.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. to:

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9
Facsimile No.: 204-949-0864
Send Invoices to CityWpgAP-INVOICES@winnipeg.ca
Send Invoice Inquiries to CityWpgAP-INQUIRIES@winnipeg.ca

D37.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of work performed;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D37.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D38. PAYMENT

- D38.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.
- D38.2 Further to D26, no payment will be made for Site Occupancy, other than as set out in D26.4.1

D39. FUEL PRICE ADJUSTMENT

- D39.1 The Contract is subject to a fuel price adjustment which will be calculated monthly based on eligible Work completed utilizing the following mathematical formulas;
- (a) where the price of fuel has increased - $((CFI/BFI)-1.15) \times Q \times FF$; and
 - (b) where the price of fuel has decreased - $((CFI/BFI)-0.85) \times Q \times FF$; where
 - (i) BFI = base fuel index
 - (ii) CFI = current fuel index
 - (iii) FF = fuel factor
 - (iv) Q = monetary value of Work applied in the calculation.
- D39.1.1 Eligible Work will be determined in accordance with D39.5.
- D39.1.2 The base fuel index (BFI) will be the retail price of fuel identified on the Submission Deadline based on latest published "Monthly average retail prices for gasoline and fuel by geography" for Winnipeg, published by [Statistics Canada, Table 18-10-0001-01](#). The BFI is a blended rate based on 15% regular unleaded gasoline at self-service filling stations and 85% diesel fuel at self-service filling stations.
- D39.1.3 The current fuel index (CFI) based on the above blended rate will be determined for each monthly progress estimate and applied on the following progress estimate as a change order once rates are published by Statistics Canada.
- D39.1.4 A Fuel Factor (FF) rate of the monetary value of all eligible Work completed that month based on the Contract unit prices will be used to calculate the assumed apportioned cost of fuel.
- D39.2 Fuel cost adjustments may result in additional payment to the Contractor or credit to the City within the Contract by way of a monthly change order.
- D39.3 The fuel escalation or de-escalation adjustment will not be applied if the CFI is within $\pm 15\%$ of the BFI.
- D39.4 Fuel escalation adjustments will not be considered beyond the Substantial Performance/Critical Stages except where those dates/Working Days are adjusted by change order. Fuel de-escalation adjustments will apply for Work that extends beyond the dates/Working Days specified for Substantial Performance/Critical Stages.
- D39.5 The Fuel Factor (FF) rates will be set as follows:
- (a) The Fuel Factor rate shall be set at 1.2% of the monetary value of all Work identified on Form B: Prices related to Water & Waste Work.

WARRANTY

D40. WARRANTY

- D40.1 Warranty is as stated in C13.

DISPUTE RESOLUTION

D41. DISPUTE RESOLUTION

- D41.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D41.
- D41.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"
- D41.3 The entire text of C21.5 is deleted, and amended to read:
- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit their written Appeal Form, in the manner and format set out on the City's Materials Management Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.
- D41.4 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):
- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.
 - (b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.
- D41.4.1 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.
- D41.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.
- D41.4.3 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.
- D41.4.4 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D41.4.3, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

THIRD PARTY AGREEMENTS

D42. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D42.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D42.2 Further to D42.1, in the event that the obligations in D42 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D42.3 For the purposes of D42:
- (a) "**Government of Canada**" includes the authorized officials, auditors, and representatives of the Government of Canada; and
 - (b) "**Government of Manitoba**" includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D42.4 Modified Insurance Requirements
- D42.4.1 If not already required under the insurance requirements identified in D14, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and their Ministers, officers, employees, and agents shall be added as additional insureds.
- D42.4.2 If not already required under the insurance requirements identified in D14, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D42.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.
- D42.4.4 Further to D14.6, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D42.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D42.5 Indemnification By Contractor
- D42.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.

- D42.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;

in relation to this Contract or the Work.

D42.6 Records Retention and Audits

D42.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.

D42.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D42.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D42.7 Other Obligations

D42.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.

D42.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.

D42.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.

D42.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.

D42.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts,

unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D42.7.6

The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

FORM H1: PERFORMANCE BOND
(See D15)

KNOW EVERYONE BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____.)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

TENDER NO. 104-2023

CONSTRUCTION OF TRUNK AND LDS SEPARATION – COCKBURN & CALROSSIE SEWER RELIEF
(CONTRACT 9A)

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 2023 .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

FORM H2: LABOUR AND MATERIAL PAYMENT BOND
(See D15)

KNOW EVERYONE BY THESE PRESENTS THAT

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Principal"), and

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), for the use and benefit of claimants as herein below defined, in the amount of

_____ dollars (\$_____)

of lawful money of Canada, for the payment whereof we, the Principal and the Surety jointly and severally bind ourselves firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

TENDER NO. 104-2023

CONSTRUCTION OF TRUNK AND LDS SEPARATION – COCKBURN & CALROSSIE SEWER RELIEF
(CONTRACT 9A)

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labour, service and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal for labour, service and material, or any of them, used or reasonably required for use in the performance of the contract, labour, service and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract;
- (b) The above-named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work, labour or service was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon;
- (c) No suit or action shall be commenced hereunder by any claimant
 - (ii) unless claimant shall have given written notice to the Principal and the Surety above-named, within one hundred and twenty (120) days after such claimant did or performed the last of the work, labour or service, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work, labour or service was done or performed. Such notice shall be served by mailing the same by registered mail to the Principal, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the Province of Manitoba;

- (iii) after the expiration of one (1) year following the date on which Principal ceased work on said Contract; including work performed under the guarantees provided in the Contract;
 - (iv) other than in a court of competent jurisdiction in the Province of Manitoba.
- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

The Principal and Surety hereby agree that The Guarantors' Liability Act (Manitoba) shall apply to this Bond.

IN TESTIMONY WHEREOF, the Principal has hereunto set its hand affixed its seal, and the Surety has caused these presents to be sealed and with its corporate seal duly attested by the authorized signature of its signing authority this

_____ day of _____, 2023 .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in their entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B7. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B7.
- E1.4 The following are applicable to the Work:

<u>Drawing No.</u>	<u>Drawing Name/Title</u>
LD-12040	Cover Sheet
LD-12041	Drawing Index & General Notes
LD-12042	Key Plan & Manhole Schedule
LD-12043	Taylor Avenue - Poseidon Bay to Wilton Street - Poseidon Bay to Sta 2+15
LD-12044	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 2+15 to Sta 3+25
LD-12045	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 3+25 to Sta 4+50
LD-12046	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 4+50 to Sta 5+75
LD-12047	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 5+75 to Sta 7+00
LD-12048	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 7+00 to Sta 8+20
LD-12049	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 8+20 to Sta 9+40
LD-12050	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 9+40 to Sta 10+60
LD-12051	Taylor Avenue - Poseidon Bay to Wilton Street - Sta 10+60 to Wilton Street
LD-12052	Poseidon Bay & Nathaniel Street - Taylor Avenue to 25m North of Taylor Avenue
LD-12053	Manhole Details
LD-12054	Miscellaneous Details

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C3.1, a geotechnical soils investigation was completed and geotechnical test holes have been drilled in the vicinity of the proposed Works to determine the character of the subsurface soil to facilitate the design of the Work. The information listed is considered accurate at the locations indicated (see drawing LD-12042 for location plan of all test holes) and at the time of the investigation. However, considerable variations in the soil conditions may exist between test holes and fluctuations in ground water levels can be expected seasonally. The geotechnical investigation report with test hole logs is included in Appendix B.

GENERAL REQUIREMENTS

E3. OFFICE FACILITIES

- E3.1 The Contractor shall supply a separate Site trailer for exclusive use by the Contract Administrator.
- E3.2 The Site trailer will serve as the Contract Administrators' office facility and shall meet the following requirements:
- (a) The field office shall be for the exclusive use of the Contract Administrator and City staff and will be used for site meetings.
 - (b) The field office shall be located near the Site of Work at a location acceptable to the Contract Administrator.
 - (c) The building shall have a minimum floor area of 25 square metres, minimum of two windows and a door entrance with suitable lock.
 - (d) The building shall be suitable for all-weather use. It shall be equipped with an electric heater and air conditioner capable of maintaining a temperature range between 16 °C and 25 °C.
 - (e) The building shall be supplied with adequate lighting and have a minimum of three wall outlets with 120 Volt power supply at all times.
 - (f) The building shall be furnished with two desks, two meeting tables, one drafting table, one filing cabinet and a minimum of 12 chairs.
 - (g) A portable toilet shall be located near the field office building. The toilet shall have a locking door.
 - (h) The field office shall be cleaned on a weekly basis, prior to the Site Meetings, to the satisfaction of the Contract Administrator.
- E3.3 The office facilities will be provided from the date of the commencement of the Work to the date of Substantial Performance.
- E3.4 Measurement and Payment
- (a) The Contractor shall be responsible for all installation, transportation and removal costs, all operating costs, provision of furnishings and equipment, cleaning and the general maintenance of the office facilities.
 - (b) Payment for the office facility is included in Site Development and Restoration.

E4. SHOP DRAWINGS

E4.1 Description

- E4.1.1 This Specification shall revise, amend and supplement the requirements of CW 1100.
- (a) The term 'shop drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including Site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the Work.
 - (b) The Contractor shall submit specified shop drawings to the Contract Administrator for review. All submissions must be in metric units. Where data is in imperial units, the correct metric equivalent shall also be shown on all submissions for Engineering review.
- E4.1.2 Shop Drawings
- (a) Original drawings are to be prepared by the Contractor, Subcontractor, Supplier, Distributor, or Manufacturer, which illustrate appropriate portion of Work; showing fabrication, layout, setting or erection details as specified in appropriate sections.

- (b) Shop drawings for the following structural components shall bear the seal of a Registered Professional Engineer in the Province of Manitoba.
 - (i) Shoring and Shaft Layout
 - (ii) Reinforcing Steel
 - (iii) Pre-cast Concrete Structures
 - (iv) Pipe Jacking Pipe
 - ◆ The Contractor must provide pipes that can be installed with their intended means and methods. The pipe class listed on the drawings is intended only to meet the final burial depth of the pipe in accordance with ASTM C76 standards. The Contractor must provide a submission that demonstrates that the proposed pipe can support the anticipated loading applied to the pipe.
 - (v) Thrust Blocks
 - ◆ A thrust block shop drawing is required for any trenchless technology that requires applying thrust as part of its process. The interaction of the thrust with respect to shoring, existing soil conditions, existing utilities or other site-specific issues must be addressed by the thrust block design.
- (c) Additional submittal requirements for each component of Work may be listed within the relevant specification section.
- (d) Construction of any Work item requiring a shop drawing may not commence until the specific shop drawing Submittal has been approved.
 - (i) Note that no shaft construction may proceed without approved shop drawings that include engineered stamped drawings demonstrating that the shoring design(s):
 - ◆ Meet all provincial regulations.
 - ◆ Is able to support soil and active loading.
 - ◆ Permits the effective installation of the planned works.
 - ◆ Where shafts are used for tunnelling that the shoring also supports the planned tunnelling works as well as interaction with the thrust block design.

E4.1.3 Contractor's Responsibility

- (a) Review shop drawings, product data and samples prior to submission and stamp and sign drawings indicating conformance to the Contract requirements.
- (b) Verify:
 - (i) Field Measurements
 - (ii) Field Construction Criteria
 - (iii) Catalogue numbers and similar data
- (c) Coordinate each submission with requirements of Work and Contract Documents. Individual shop drawings will not be reviewed until all related drawings are available.
- (d) Notify Contract Administrator, in writing at time of submission, of deviations from requirements of Contract Documents.
- (e) Responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator's review of submission, unless Contract Administrator gives written acceptance of specified deviations.
- (f) Responsibility for errors and omissions in submission is not relieved by Contract Administrator's review of submittals.
- (g) The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to

revisions other than the corrections requested by the Contract Administrator on previous submission.

- (h) After the Contract Administrator's review and return of copies, distribute copies to sub-trades as appropriate.
- (i) Maintain one (1) complete set of reviewed shop drawings, filed by Specification Section Number, at the Site of the Work for use and reference of the Contract Administrator and Subcontractors.

E4.1.4 Submission Requirements

- (a) Schedule submissions at least 10 Calendar Days before dates that the reviewed submissions will be needed and allow for a 10 Calendar Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract Documents.
- (b) Submit one (1) digital copy (PDF) of shop drawings.
- (c) Accompany submissions with transmittal letter, containing:
 - (i) Date
 - (ii) Project title and Bid Opportunity number
 - (iii) Contractor's name and address
 - (iv) Number of each shop drawing, product data and sample submitted
 - (v) Specification Section, Title, Number and Clause
 - (vi) Drawing Number and Detail/Section Number
 - (vii) Other pertinent data
- (d) Submissions shall include:
 - (i) Date and revision dates.
 - (ii) Project title and Bid Opportunity number.
 - (iii) Name of:
 - ◆ Contractor
 - ◆ Subcontractor
 - ◆ Supplier
 - ◆ Manufacturer
 - ◆ Separate detailer when pertinent
 - (iv) Identification of product of material.
 - (v) Relation to adjacent structure or materials.
 - (vi) Field dimensions, clearly identified as such.
 - (vii) Specification section name, number and clause number or drawing number and detail/section number.
 - (viii) Applicable standards, such as CSA or CGSB numbers.
 - (ix) Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.

E4.1.5 Other Considerations

- (a) Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.
- (b) Material and equipment delivered to the Site of the Works will not be paid for at least until pertinent shop drawings have been submitted and reviewed.
- (c) Incomplete shop drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.
- (d) No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions and review of shop drawings.

E4.2 Measurements and Payment

E4.2.1 Preparation and submittal of shop drawings shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

E5. EXPEDITED SHOP DRAWINGS

E5.1 In order to expedite Shop Drawings with critical timeliness, the Lowest Responsive Bidder will be permitted, after receiving written approval from the Contract Administrator, to arrange for the preparation of Shop Drawings for the following items with critical timelines:

- (a) Shaft Shoring
- (b) Pre-cast Concrete Structures
- (c) Pipe
- (d) Temporary Plug as identified in in E14.

E5.2 If Award is made to the Lowest Responsive Bidder, then no specific payment for the preparation of Shop Drawings will be made.

E5.3 If no contract is awarded, then the City of Winnipeg will pay the requested Bidder five hundred dollars (\$500.00) per item listed above. Delivery of the Shop Drawings to the City and payment of the above amounts will constitute full and final consideration of each party to the other, and neither party will have any further liability to the other with respect to this Tender.

E6. ENVIRONMENTAL PROTECTION PLAN

E6.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.

E6.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

- (a) Federal
 - (i) Canadian Environmental Protection Act (CEPA) c.16
 - (ii) Canadian Environmental Assessment Act (CEAA) c.37
 - (iii) Transportation of Dangerous Goods Act and Regulations c.34
- (b) Provincial
 - (i) The Dangerous Goods Handling and Transportation Act D12
 - (ii) The Endangered Species Act E111
 - (iii) The Environment Act c.E125
 - (iv) The Fire Prevention Act F80
 - (v) The Manitoba Heritage Resources Act H39.1
 - (vi) The Manitoba Noxious Weeds Act N110
 - (vii) The Manitoba Nuisance Act N120
 - (viii) The Public Health Act c.P210
 - (ix) The Workplace Safety and Health Act W120
 - (x) Other current applicable associated regulations.
- (c) Municipal
 - (i) The City of Winnipeg By-law no. 1/2008
 - (ii) Other applicable Acts, Regulations and By-laws.

E6.3 The Contractor is advised that the following environmental protection measures apply to the Work.

- (a) Materials Handling and Storage

- (i) Construction materials and debris shall be prevented from entering drainage pipes or channels.
 - (ii) Construction materials and debris shall also be prevented from accumulating on local roadways and sidewalks when tracked out of the Site by trucks hauling excavated materials.
- (b) Fuel Handling and Storage
- (i) The Contractor shall obtain all necessary permits from Manitoba Ministry of Sustainable Development for the handling and storage of fuel products and shall provide copies to the Contract Administrator.
 - (ii) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.
 - (iii) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.
 - (iv) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.
 - (v) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.
 - (vi) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.
 - (vii) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse or LDS inlet.
 - (viii) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.
 - (ix) A sufficient supply of materials, such as absorbent material and plastic oil booms to clean up minor spills shall be stores nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.
- (c) Waste Handling and Disposal
- (i) The construction area shall be kept clean and orderly at all times during and at completion of construction.
 - (ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.
 - (iii) All resulting debris shall be deposited at a Waste Disposal Facility operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).
 - (iv) Indiscriminate dumping, littering, or abandonment shall not take place.
 - (v) No on-site burning of waste is permitted.
 - (vi) Waste storage areas shall not be located so as to block natural drainage.
 - (vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse (via entry into the LDS sewers).
 - (viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
 - (ix) Equipment shall not be cleaned near watercourses or LDS inlets; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.
- (d) Dangerous Goods/Hazardous Waste Handling and Disposal
- (i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.

- (ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.
 - (iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.
 - (iv) Different waste streams shall not be mixed.
 - (v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.
 - (vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.
 - (vii) Used oils shall be stored in appropriate drums, or tankage, until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.
 - (viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.
 - (ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.
 - (x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.
 - (xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.
 - (xii) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.
- (e) Emergency Response
- (i) The Contractor shall ensure that due care and caution is taken to prevent spills.
 - (ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1) to Manitoba Ministry of Sustainable Development, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 944-4888. The Contract Administrator shall also be notified.
 - (iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.
 - (iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:
 - Notify emergency-response co-ordinator of the accident:
 - identify exact location and time of accident
 - indicate injuries, if any
 - request assistance as required by magnitude of accident (Manitoba Ministry of Sustainable Development 24-hour Spill Response Line (204) 944-4888, Police, Fire Department, Ambulance, company backup)
 - Attend to public safety:
 - stop traffic, roadblock/cordon off the immediate danger area
 - eliminate ignition sources
 - initiate evacuation procedures if necessary
 - Assess situation and gather information on the status of the situation, noting:
 - personnel on-site
 - cause and effect of spill
 - estimated extent of damage
 - amount and type of material involved
 - proximity to waterways, sewers, and manholes

If safe to do so, try to stop the dispersion or flow of spill material:

- approach from upwind
 - stop or reduce leak if safe to do so
 - dike spill material with dry, inert sorbet material or dry clay soil or sand
 - prevent spill material from entering waterways and utilities by diking
 - prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking. Resume any effective action to contain, clean up, or stop the flow of the spilled product.
- (v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Ministry of Sustainable Development according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.
- (vi) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.
- (vii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.
- (viii) City emergency response, 9-1-1, shall be used if other means are not available.
- (f) Vegetation
- (i) Vegetation shall not be disturbed without written permission of the Contract Administrator. The Contractor shall protect plants which may be at risk of accidental damage. Such measures may include protective fencing or signage and shall be approved in advance by the Contract Administrator.
 - (ii) Areas where vegetation is removed during clearing, construction, and decommissioning activities, shall be revegetated as soon as possible in accordance with the City of Winnipeg standard construction practices, or as directed by the Contract Administrator.

E6.4 Method of Measurement and Payment

- (a) Adherence to the laws that govern the requirements for Environmental Protection are incidental to the Contract.

E7. SITE DEVELOPMENT AND RESTORATION

E7.1 Description

- (a) This Specification shall cover all aspects of the Site Development and Restoration Work including, but not limited to, mobilization and demobilization, office facilities, Site access, Site security (fencing and gates), utility clearances, traffic control and signage, pipe loading assessments, snow clearing, Dewatering and Drainage Plans, maintaining sewer and water flows in existing utilities, protection, removal of trees, cleanup, and Site restoration.

E7.2 Submittals

- (a) Access and Layout Plans (including traffic plan) for review and approval by the Contract Administrator, in accordance with CW 1110, for the following items:
- (i) Launch and receiving shafts.
 - (ii) Work on Taylor Ave

E7.3 Equipment

- (a) All equipment, implements, tools and facilities used shall be of a size and type as required to complete the Work effectively and in a reasonable time, approved by the Contract

Administrator. The Contractor shall keep all equipment in good working order and have sufficient standby equipment available at all times.

E7.4 Construction Methods

(a) Site and Construction Access

- (i) The Contractor shall be responsible to develop suitable Site access. This includes, but is not limited to, temporary bridging over structures, temporary removal and reinstallation of safety fencing, any landscaping and grading repairs, removal and restoration of vegetation necessary to restore any Site and construction access areas to their pre-existing condition. Prior to commencing construction, the Contractor shall submit their site access plan to the Contract Administrator for approval.
- (ii) The Contractor is responsible for obtaining and paying for all required permits and permissions that are necessary for Site access.

(b) Dewatering and Drainage Plan – The Contractor shall develop and maintain whatever means and methods are required to address the various potential flows and water levels defined in D19, including:

- ◆ Snowmelt, rainfall, water from water main breaks or any other flow traveling through the Site, into excavations, or through pipes being worked on.

- (ii) The Contractor shall acquire any permits required from the City for redirecting of flows to City sewers.
- (iii) The Contractor shall schedule and perform Work in a manner that does not cause or contribute to incidences of basement flooding, overflows, releases or spills of sewage from the sanitary sewer system or bypass operations.
- (iv) The Contractor shall ensure that any component of their Drainage and Dewatering Plans will be adequately protected from damage and protected from freezing.

(c) Maintaining Flows in Existing Sewers and Providing Temporary Pressurized Water Supply

- (i) The Contractor shall maintain sewer flows in the existing combined sewers, land drainage sewers, and sanitary sewer services; and water flow within water mains and water services that are in conflict with the land drainage sewer installations or are impacted in any way as part of the Work.
- (ii) Maintaining Flows in Existing Sewer shall be in accordance with City Specification CW 2130.
- (iii) Provide Temporary Pressurized Water Supply in accordance with City Specification CW 2110.
- (iv) Where impacting a private service, sewer or water, the Contractor shall provide two (2) business days' notice to the business manager or homeowner of the building being impacted.
- (v) The Contractor shall be responsible for all damages within or outside the Site directly resultant from Contractor's actions, omissions or neglect which may be caused by or which may result from water or sewage backing up, flowing through, overflowing or excessive surcharge of drainage or sanitary systems.

(d) Vegetation Removal, Replacement and Protection

- (i) Any sod or other vegetation removed during construction shall be restored following construction.
- (ii) No tree may be removed from Site without Prior approval by the Contract Administrator and an assessment by the City Arborist.
- (iii) The City arborist will provide a compensation value (either an amount to be reimbursed to the City Parks Department, or a number of trees to be planted in lieu) for destruction of existing urban trees. The Contractor must meet these compensation requirements for trees removed during the development of their Site.
- (iv) Trees shall be planted as per section E26.

- (v) Trees shall be protected from damage as per section E11.
- (e) General Site Cleanup and Restoration
 - (i) All areas of the construction Site shall be restored to the same condition or better than the original condition prior to initiation of the Work. This may include, but is not necessarily limited to, the Contractor's lay down areas, shaft location, the removal of the Contract Administrator's Site trailer, and removal of all temporary access paths and fencing. **Note that all permanent surface restorations are considered incidental to the respective Work items being constructed (E25).**
- (f) Topsoil and Sod
 - (i) All topsoil and sodding Work shall be performed in accordance with CW 3510. Topsoil and Sodding Work shall include all existing grassed areas disturbed by the Contractor during construction. The Contractor shall restore all areas disturbed during construction to the condition prior to the initiation of the Work, or better, using topsoil and sod at their own cost.
- (g) Traffic Control and Signage
 - (i) Coordinate, install and maintain traffic control and signage in accordance with D35 and E9.
 - (ii) At minimum, the Contractor shall install the temporary traffic control measures as shown on the conceptual traffic control figure presented in Appendix C.
- (h) Snow Clearing
 - (i) The Contractor will be required to perform snow clearing and sanding operations on City streets and sidewalks within the Site where access to City snow clearing and sanding crews is blocked due to construction activities or where construction activities have created unsafe, icy conditions.
 - (ii) Snow build-up on sidewalks and roadways shall be maintained to the condition of the surrounding sidewalks and roadways.
- (i) Construction Fencing
 - (i) The erection of temporary construction fencing is required around the laydown areas.
 - (ii) The erection of temporary construction fencing is required around all construction activity and Work activities to ensure provision of a safe Work Site.
 - (iii) Fencing or barriers shall be suitable to protect workers within the Work Site and minimize the impact to vehicular and pedestrian traffic or buildings and infrastructure in proximity to the Work Site.
- (j) Storage of Materials
 - (i) Unless otherwise noted on the Drawings as a Lay-down Area, the Contractor shall not store more than 30 linear meters of pipe in excess of 1200 mm in diameter within City Right-of-Ways in the construction Site without authorization from the Contract Administrator. The Contractor will be responsible to store their pipe off Site, or to make arrangements with private entities, the City for off Site City R.O.W.s or the City's Parks department for temporary storage facilities in available lands adjacent to the Site.

E7.5 Method of Measurement and Payment

- (a) Site development and restoration will be measured and paid for at the Contract Lump Sum Price for "Site Development and Restoration", which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.
 - (i) 30% of the Site Development and Restoration unit price will be paid on the first progress payment following commencement of the Work.
 - (ii) 30% of the Site Development and Restoration unit price will be paid on subsequent progress payments on a proportional basis based on the extent of progress up to Substantial Performance, as determined by the Contract Administrator.

- (iii) 40% of the Site Development and Restoration unit price will be paid on the progress payment following Total Performance.

E8. TRUCK WEIGHT LIMITS

- E8.1 Spring weight restrictions may apply to streets within the area of Work. The City shall not pay for any portion of material which results in the vehicle exceeding the maximum gross vehicle weight allowed under The City of Winnipeg Traffic By-Law, unless such vehicle is operating under special permit.

E9. TRAFFIC MANAGEMENT

E9.1 Description

- (a) This specification covers activities related to managing traffic throughout the work Site. Items listed here are to be followed in addition all standard requirements.
- (b) Taylor Avenue is a Regional Street with pedestrian, cycling and vehicular traffic. It is a priority to minimize the impact of construction activities related to the Work required to complete this Contract.
- (c) A conceptual traffic management plan (included in Appendix C) has been developed for use in planning traffic control for this Contract.
 - (i) The traffic management plan includes control measures on Taylor Avenue, from Wilton Street to Poseidon Bay.
 - (ii) Traffic management figures have been prepared for the development of three (3) key phases of the work:
 - ◆ Phase 1: Installation of LDS pipe from Wilton Street to Nathaniel Street and construction of a portion of the Combined Sewer Crossing Structure
 - ◆ Phase 2: Installation of LDS pipe from Nathaniel Street to Poseidon Bay and construction of a portion of the Combined Sewer Crossing Structure
 - ◆ Phase 3: Installation of LDS pipe on at the Nathaniel Street intersection and tie-in to the existing 2,400 mm LDS stub at Wilton Street
 - (iii) The concept plan has been reviewed and conditionally approved by the City of Winnipeg's Traffic Services Department subject to a final review by their department.
 - (iv) Any modifications to this plan should be submitted to the Contract Administrator for approval prior to starting Work.
- (d) Additional traffic management plans may be required for other aspects of the project. The below traffic requirements must be adhered to within these traffic management plans.

E9.2 Materials and Equipment

E9.2.1 Further to Clause 3.7 of CW 1130:

- (a) The Contractor shall be responsible for all signage and barricades as identified in the City of Winnipeg Manual of Temporary Traffic Control on City Streets. The Contractor shall provide the Contract Administrator a suitable Traffic Accommodation Strategy covering all the details for traffic management (cones and signage etc.) for each Work element at least three (3) weeks prior to commencement of any lane closures related to the Work.

E9.3 General Requirements

- E9.3.1 Passenger vehicle and delivery truck access to Sobeys and Walmart is to be maintained at all times. Should the Contractor be unable to maintain vehicle and delivery access, the Contractor shall provide at least five (5) days notification to the Contract Administrator to see if modifications can be made.

- E9.3.2 The Contractor shall not park company or private vehicles inside the barricaded work zone in a manner that will block sightlines for vehicles and pedestrians approaching and crossing or create any other safety concern.
- E9.3.3 The Contractor shall minimize the duration of road closures as much as possible such that only areas with active construction are closed off.
- E9.3.4 Emergency vehicle access must be maintained at all times.
- E9.3.5 Intersecting streets, private approach and lane access shall be maintained at all times (unless approved within the Specifications or by the Contract Administrator).
- (a) Should the Contractor be unable to maintain an existing access to a residence or business, he/she shall review the planned disruption with the business or residence and the Contract Administrator and take reasonable measures to minimize the impact. The Contractor shall provide a minimum of 24 hours notification to the affected residence or business and the Contractor Administrator, prior to disruption of access.
- E9.3.6 Winnipeg Transit service shall be maintained at all times.
- (a) Should the Contractor be unable to maintain bus stops or routes it shall be reviewed with the Contract Administrator at least 48 hours in advance to see if modifications can be made.
- E9.3.7 The Contractor shall provide at least five (5) days notification to the Contract Administrator prior to beginning a new phase of traffic control.
- E9.4 Regional Street Requirements
- E9.4.1 Regional Streets impacted by the Work will include:
- (a) Taylor Avenue
- E9.4.2 Review section E9.5.5 for additional intersecting street requirements.
- E9.4.3 General
- (a) Intermittent closures may be required at various locations to accommodate the connection to road drainage infrastructure.
 - (b) See Conceptual Traffic Management Plan in Appendix C for details.
- E9.4.4 Taylor Avenue
- (a) Maintain a minimum of one lane in both westbound and eastbound directions during all stages of construction. The Active Transportation Pathway on the south side of Taylor Ave is to be maintained at all times. Temporary lane crossings over the median will be permitted during the installation Works at locations as shown on the Traffic Management Plans in Appendix C.
 - (b) Work on Taylor Avenue is described in two general zones:
 - (i) Work east of Nathaniel Street
 - (ii) Work west of Nathaniel StreetThe traffic management plan listed in Appendix C shall be adhered to when work is planned to occur in one of these zones. If no work is occurring in a zone than the traffic management plan shall not be implemented. Once work is completed in each zone the road shall be reinstated.
 - (c) Work east of Nathaniel Street
 - (i) Sections of the eastbound and westbound lanes between Nathaniel St and Wilton St will need to be temporarily closed with contra-flow lanes utilized along with temporary crossovers installed by the Contractor at four (4) locations.
 - (ii) Transit bus stops will need to be relocated as parts of the Phase 1 and 3 Work.
 - (iii) Left turns may be prohibited along Taylor Avenue at the following locations:
 - ◆ westbound at Wilton Street (Phase 1)

- (iv) Right turns may be prohibited along Taylor Avenue at the following locations:
 - ◆ N/A
- (d) Work west of Nathaniel Street
 - (i) Sections of the eastbound and westbound lanes between Nathaniel St and Poseidon Bay will need to be temporarily closed with contra-flow lanes utilized along with temporary crossovers installed by the Contractor at three (3) locations.
 - (ii) Left turns may be prohibited along Taylor Avenue at the following locations:
 - ◆ eastbound at Nathaniel Street (Phase 2)
 - ◆ eastbound at Poseidon Bay (Phase 2A)
 - (iii) Right turns may be prohibited along Taylor Avenue at the following locations:
 - ◆ westbound at Poseidon Bay (Phase 2A)
- (e) Intermittent closures may be required at various locations to accommodate the construction of the intermediate manholes before and after tunnel construction.

E9.5 Local/Non-Regional Street Requirements

E9.5.1 Local Streets impacted by the Work will include:

- (a) Wilton Street
- (b) Nathaniel Street
- (c) Poseidon Bay

E9.5.2 Wilton Street

- (a) Northbound left turns will not be allowed during Phases 1 and 3.

E9.5.3 Nathaniel Street (Construction of Stub-Out Connection)

- (a) Maintain a minimum of one lane of traffic in the northbound and southbound direction
- (b) Closures on Nathaniel St. (for the stub out connection) shall not occur at the same time as Phase 1 or Phase 2 work.

E9.5.4 Poseidon Bay (Construction of Stub-Out Connection)

- (a) Northbound access from Taylor Avenue to Poseidon Bay will be restricted during Phase 2A.
- (b) Note that transit buses will be temporarily detoured to Cambridge Street for both north and southbound buses.

E9.5.5 For all local or non-regional streets, and where not shown otherwise in the Drawings, the Contractor shall:

- (a) Maintain a minimum of one lane of traffic that can be used in either direction.
- (b) Maintain access for garbage/recycling trucks.
- (c) Ambulance/ emergency vehicle access must be maintained at all times.
- (d) Where possible maintain safe pedestrian routes around shaft locations and all other Work areas.

E9.6 Measurement and Payment

- (a) All Work associated with adhering to the Traffic Management requirements identified are incidental to Site Development and Restoration.

E10. EXPLORATION OF EXISTING UTILITIES AND SERVICES

E10.1 General

- (a) This specification covers the soft dig exploration of existing buried utilities both within the project Site for the Current Project (Contract 9A), and outside of the project site for the purpose of locating utilities for future contracts.
- (b) Further to CW 1120, the Contractor shall perform exploratory excavations by soft dig methods or other methods suitable to the Contract Administrator to verify and locate buried utilities including, but not limited to, sewers, sewer services, feeder mains, watermains, water services, hydrant leads, gas, power and telecommunications ducts and conduits, traffic signal conduits, street lighting and other communication cables.

E10.2 Execution

- (a) The on Site exploration shall be done following all utility location surveys and a minimum of four (4) Working Days prior to trenchless sewer construction along the road segment in question (from downstream connection to the extent of the pipe upstream). The information obtained will determine if an alternate vertical or horizontal alignment of the proposed sewer may be beneficial to minimize conflicts with the existing utilities or services.
- (b) All proposed dig locations must be clearly identified and submitted to the Contract Administrator prior to utility exploration Work beginning.
 - (i) The Contract Administrator may add additional locations.
- (c) The Contractor shall arrange for all required utility locations, safety watches and other required notifications.
- (d) The Contractor shall provide a minimum of two (2) Business Days' notice to the Contract Administrator prior to conducting utility exposures.
- (e) The Contractor shall arrange for any required traffic control to be set up in advance of the Work and notify the Contract Administrator to arrange for lane closures as required.
- (f) The Contractor shall use soft digging equipment (i.e. hydro-excavator) to expose the utility under investigation.
- (g) The Contractor shall record the depth of the utility and provide this information to the Contract Administrator.
- (h) The Contractor is responsible for backfill and restoration of all soft dig locations. Contractor to assume soft dig locations to be in paved road way.

E10.3 Measurement and Payment

- (a) Any exploration of existing utilities and services within the Work Site along the path of the drive lengths, at shafts, service connections, or any other construction activities associated with the Work, whether explicitly shown on the Drawings or not, are the responsibility of the Contractor and are incidental to the cost of the LDS sewer installation under Trenchless Sewer Construction.
- (b) Exploration of additional locations identified by the Contract Administrator for future contracts shall be paid at a Per Unit Rate identified as "Utility Exploration" under Provisional Items. The cost shall include all Works described herein for each utility exploration hole identified by the Contract Administrator.
 - (i) Restorations of surface features (e.g. pavement or topsoil and sod) for utility exploration of future contracts will be incidental to the Work included in this Specification.

E11. PROTECTION, REPAIR, REMOVAL AND REPLACEMENT OF EXISTING TREES

E11.1 The Contractor shall take the following precautionary steps to avoid damage from their construction activities to existing boulevard trees within and adjacent to the limits of construction. Contact the City of Winnipeg Forestry Branch at 204-986-2004 if you require further information on these specifications:

- (a) For trees greater than 100 mm in diameter, attach wood strapping material having a minimum thickness of 25 mm and minimum length of 2,440 mm around tree trunks in a manner that will not harm the trees. Do not use nails or other fasteners that penetrate into

trees. The width of strapping should suit the size of the tree being protected. Length of strapping may be reduced to suit the size of tree being protected as approved by the Contract Administrator.

- (b) For trees less than 100 mm in diameter, these shall be similarly protected as Clause E11.1(a) using appropriately sized wood strapping material.
- (c) Operation of equipment within the dripline of the trees shall be kept to the minimum required to perform the Work. Equipment shall not be parked, repaired, refueled; construction materials shall not be stored; and earth materials shall not be stockpiled within the driplines of the trees. The dripline of a tree shall be considered as the ground surface directly beneath the tips of its outermost branches. The Contractor shall ensure that the operations do not cause flooding or sediment deposit on areas where trees are located.
- (d) Contractor shall repair, replace and maintain tree protection material during construction of the Work.
- (e) Contractor shall remove strapping material without harming trees as soon as the construction and restoration Work is complete.

- E11.2 Obtain approval from the Contract Administrator to excavate within 2.0 meters of a tree.
- E11.3 Excavate in a manner to minimize damage to root systems. Keep exposed roots in excavations and trenches moist or shaded.
- E11.4 Prune exposed roots with equipment such as trenchers, chain saws, root cutters or other methods acceptable to the Contract Administrator in a manner that will leave a new, clean root end and shall be coated with an appropriate wound dressing to prevent infection.
- E11.5 Take precautions to ensure tree limbs overhanging the Site are not damaged by construction equipment. Consult Forestry Branch on pruning of overhanging or damaged limbs and branches and other unanticipated problems with trees during construction of the Works.
- E11.6 American elm trees not to be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.
- E11.7 All damages to existing trees caused by the Contractor's construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Public Works Department, Urban Forestry Branch. Damages must be repaired by an individual with a Manitoba Arborist license or by the Forestry Branch.
- E11.8 The Forestry Branch will remove and replace any trees deemed to have died or that are dying due to damage from carelessness during construction. Removal and replacement costs will be determined by size and market price. The market price will be for a comparable transplantable tree of the same or different species or may be the appraised value of the existing tree, as determined by an evaluation procedure presently used by Forestry Branch in conjunction with the City Claims Branch. The evaluation procedure is in accordance with current International Society of Arboriculture evaluation procedures.
- E11.9 Protection of existing trees, and repair of trees (including pruning of damaged limbs) will not be measured for payment and will be incidental to the Works. Removal and replacement of existing trees by the Forestry Branch deemed to have died or that are dying due to damage from carelessness during construction will be at the Contractor's cost and will be invoiced or deducted from any payments owing.
- E11.10 Removal of trees will be measured and paid for on a per unit basis for each tree removed at the Provisional Contract unit prices for "Tree Removal".
- E11.11 Planting of trees will be measured and paid for on a per unit basis for each tree planted at the Provisional Contract unit prices for "Tree Planting".

E12. SUPPLY AND INSTALLATION OF TEMPORARY SHORING

E12.1 Description

- (a) This Specification supplements CW 2030 and covers shoring requirements for the Works.

E12.2 Construction Methods

(a) Excavation

- (i) Remove excavated material from the Site immediately. Excavated material shall not be stockpiled on-Site.
- (ii) All Working areas below grade shall be kept adequately and securely supported during and after excavation until the shoring and bracing is in place to prevent loss of ground or injury to any person from falling material.

(b) Excavation Security Fence

- (i) Further to Clause 3.1 of CW 1130, completely cover the excavation and provide a security fence to completely surround the excavation when unattended generally in accordance with the following:
 - ◆ Security fence shall be chain link fence as per CW 3550 or approved equal in accordance with B7, a minimum 1.80 metres high with metal support posts embedded far enough into the ground and spaced close enough together so the fence will not sag or collapse.
 - ◆ Attach fencing securely to posts.
 - ◆ Secure the gate or end of the fencing to a post with chain and a padlock.

(c) Shoring

- (i) The type, strength, and amount of shoring and bracing shall be provided consistent with the nature of the ground surface and subsurface conditions, taking into account property lines, existing slopes, utilities and roadways.
- (ii) Shoring and bracing shall be so spaced and dimensioned as to prevent caving, loss of ground, surface settlement, or squeezing of the soil beyond the neat lines of excavation. It shall be free from defects that might impair its strength or suitability for the Work. Sheeting/shoring and bracing shall conform to the latest revisions of the "Construction Safety Act" of the Department of Labour of the Government of Manitoba and in accordance with Province of Manitoba "W210 The Workplace Safety and Health Act" and "Guidelines for Excavation Work".
- (iii) Submit supporting design calculations as required to facilitate review of the submission for conformance with the Contract Documents.
- (iv) Submit AutoCAD Shop Drawings and design calculations for the shoring/excavation system designed and sealed by a Professional Engineer registered or licensed to practice in the Province of Manitoba and experienced in the structural design of shoring systems. The designer of the shoring system shall inspect the system during construction and certify, in writing to the Contract Administrator, that construction is in conformance with the approved design.
- (v) Shoring and bracing shall be installed such that the structure size and wall thickness shown on the shop drawings can be effectively installed and or constructed subsequent to installation of the shoring system.
- (vi) Shoring and bracing shall be designed and installed to prevent settlement and damage to existing structures. In the event of damage, the Contractor will be held liable, and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.
- (vii) Shoring and bracing shall remain in place until it is no longer required to complete the Work.

(d) Monitoring Movement of Shoring

- (i) The Contractor shall submit to the Contract Administrator a plan for monitoring the movement of trench shoring during construction a minimum of two (2) Working Days

prior to the installation of trench shoring. The monitoring plan shall be performed by approved survey methods for vertical or horizontal movement of the shoring, acceptable to the Contract Administrator. Costs for monitoring shall be incidental to the installation of the temporary shoring.

E12.3 Measurement and Payment

- (a) Shoring required for shafts to complete the Work will be incidental to the components of the Work to which shoring is required. No additional payment will be made for supplying materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E13. EXCAVATION, BEDDING AND BACKFILL

E13.1 General

- (a) This Specification supplements requirements for excavation, bedding and backfill identified in CW 2030.

E13.2 Related Specifications

- (a) Environmental Protection Plan - Section E6
- (b) Exploration of Existing Utilities and Services - Section E10
- (c) Trenchless Sewer Construction – Section E15

E13.3 Submittals

- (a) Submit shoring designs to Contract Administrator, in accordance with E12.

E13.4 Existing Utilities

- (a) Arrange and pay for any required safety watches around existing utilities as per CW 1120.
- (b) The Contractor shall arrange and provide temporary or permanent relocation of existing utilities, and or temporary support of existing utilities required for the excavation of the shafts. Work on private utilities may not occur without submittal and approval of your utility plan to the Contract Administrator and approval from the utility owner.
- (c) See Specification Section E31 for further requirements.

E13.5 Disposal of Unsuitable or Surplus Excavated Material

- (a) The Contractor is responsible for arranging for a disposal site for all excavated material, and associated Works including transportation and payment of tipping fees.
- (b) There shall be no measurement of surplus soil material disposed of at any disposal site. No additional payment will be made for disposal of surplus soil materials. It shall be considered incidental to the cost of the Work.

E13.6 Foundation and Bedding and Initial Backfill

- (a) Foundation and Bedding to be Class B, Type 2 Bedding for shafts with PVC pipe and Type 3 Bedding for shafts with concrete pipe, in accordance with City of Winnipeg standard detail SD-001.
- (b) Bedding for concrete collar connecting existing 2,400 mm dia. LDS to 2,400 x 1,800 mm dia. eccentric reducer at the Wilton St./ Taylor Ave intersection to be Class A, with Cement Stabilized Fill in accordance with CW 2160 Bedding

E13.7 Backfill

- (a) Excavations under or within one (1) metre of paved areas on Regional Streets (Taylor Avenue) shall be Class 1 as per SD-002 unless otherwise noted below or on the Drawings.

- (b) Excavations under or within one (1) metre of paved areas on other roadways shall be Class 3 as per SD-002 (Class 2 backfill would also be acceptable, but at no additional cost), unless otherwise noted below or on the Drawings.
- (c) Material excavated when frozen, or when air temperature is less than 0°C, shall not be used as fill or backfill until material completely thaws.
- (d) The Contractor shall have personnel available for immediate repairs of settlement at shaft locations from the start of construction until final restoration is complete.
- (e) CLSM
 - (i) Cement Stabilized Fill (CLSM) shall be in accordance with CW 2030 and Table CW 2160.1 unless otherwise indicated on the Drawings. Further to Table CW2160.1 the maximum compressive strength at 28 days to be no more than 1 MPa.
 - (i) The Contractor shall install fill in lifts and provide sufficient supports to resist uplift of piping or structures due to backfilling.
 - (ii) Connection to 2,400 mm LDS pipe will be backfilled with CLSM up to 200 mm above top of pipes.
 - (iii) Excavations made within the path of the new sewer Works prior to Trenchless Sewer Construction operations shall be backfilled with CLSM.

E13.8 Measurement and Payment

- (a) All costs associated with Excavation, Bedding and Backfill as described herein are incidental to the installation of the LDS sewer piping covered in Trenchless Sewer Construction (E15).

E14. MAINTAINING WATER LEVEL IN LDS TRUNK AND SRB

E14.1 Description

- (a) This Specification covers the Work required to maintain the water level within the storm retention basin (SRB) located south of the CN rail line, and the existing LDS system being connected to at the 2,400 mm stub at the intersections of Taylor Avenue and Wilton Street.
- (b) The water level within the SRB is maintained at an approximate elevation of 227.7m. As such, the LDS system upstream of the SRB will have a static water level of approximately 227.7 m. This water level must be maintained throughout construction.
- (c) Without proper planning, the Work required to facilitate the installation of the LDS on Taylor Avenue and the connection to the 2,400 mm stubs could result in the lowering of the water level within the Taylor LDS Trunk and SRB, which is not permitted.
- (d) The Contractor will be responsible for the installation of temporary plug to facilitate the work and the connection to the existing LDS system. It is anticipated that plug will be required to be installed on the upstream (west) side of Manhole 42 (installed as part of Contract 5) at the Taylor Avenue and Wilton street intersection.
- (e) With respect to Maintaining the Water Level in the LDS Trunk, this Specification describes:
 - (i) The requirements to install and maintain temporary plug to maintain the water level throughout construction and to facilitate construction Work; and
 - (ii) Maintain the water level in the SRB and LDS system when the new LDS from this contract (C9A) is connected to the existing LDS system.

E14.2 Submittals

- (a) All submittals shall be completed in accordance with E4.
- (b) LDS Trunk Operation and Connection Plan
 - (i) A plan for maintaining the operation of the downstream LDS trunk sewers including temporary plug in the existing 2,400 mm pipe must be submitted to the Contract Administrator for review and approval in accordance with E4.

- (ii) A plan for connecting the new LDS pipe to the existing LDS sewer must be submitted to the Contract Administrator for review and approval in accordance with E4.
- (c) Methodology for filling the new LDS pipes with water prior to removal of the plug to the Contract Administrator for review and approval.

E14.3 Construction Methods

E14.3.1 Maintaining Water Level in the LDS Trunk - Maintaining flows to facilitate the construction of the LDS pipes.

- (a) Temporary plug will need to be installed to facilitate the Work. The design and installation of the plug is the responsibility of the Contractor.
- (b) Installation
 - (i) Clean interior contact surfaces of pipe and install temporary plug.
 - (ii) Plug shall be watertight and capable of withstanding internal water pressures (surcharge to surface) without leakage.
 - (iii) The location of the plug must not interfere with flows in the existing LDS system.
 - (iv) The plug shall not be installed in a location where the pipe is exposed and pressures could cause a pipe joint to open (unless additional supports have been designed to overcome these forces)
 - (v) Any seepage through the plug to the upstream side shall be redirected to the downstream side of the plug.

E14.3.2 Maintaining Water Level in the LDS Trunk and SRB.

- (a) If the water level in the SRB is lowered as a result of the construction activities (at any point during construction), then the Contractor will be responsible for refilling the LDS Trunk and SRB at their own cost as per D36.
- (b) City water may be used to refill the system during construction. Sewer dechlorination will be required prior to filling in accordance with the City of Winnipeg Sewer By-law No. 106/2018.
- (c) Maintaining the plug, and any pumping to support against leaking or overflows from the downstream side of the plug throughout construction, are the responsibility of the Contractor.

E14.3.3 Removal of temporary plug and connection of LDS extension to the LDS Trunk.

- (a) When construction of the LDS extension is complete and the connections are made, the temporary plug will need to be removed.
- (b) The temporary plug shall not be removed until final inspection of the new piping has been completed and the Contractor has received authorization from the Contract Administrator.
- (c) Prior to removing the temporary plug, the LDS extension shall be filled with water to avoid sudden drops of water in the SRB, and to facilitate the safe removal of the plug.
 - (i) The method of filling the LDS extension with water shall be submitted to the Contract Administrator for review and approval.
 - (ii) Ground water will not be permitted for filling the system.

E14.4 Measurement and Payment

- (a) Maintaining Water Level in the LDS Trunk and SRB will be measured and paid at the Contract Lump Sum Price for "Install and Remove Temporary Plug", for each plug, which price shall be payment in full for performing all operations herein described and all other items incidental to the Work included in this Specification.
- (b) This item will be paid as follows:

- (i) 50% of the cost will be paid out upon installation of the temporary plug by the Contractor.
- (ii) 50% of the cost will be paid out upon removal of the temporary plug.

E15. TRENCHLESS SEWER CONSTRUCTION

E15.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the installation of LDS Sewers ranging in diameters from 1,050 mm to 1,800 mm.
- (b) Further to Clause 3.4.1 of CW 2130, sewers shall be installed by trenchless methods.

E15.2 Materials

- (a) Pipe Classes indicated on Drawings or within the Bid documents represent long term design conditions and loading based on depth of bury. The Contractor shall verify that the pipe class, strength, reinforcing and joint design of the pipes being installed are suitable for their proposed installation methods and procedures. Design of any pipe to suit installation methods is the responsibility of the Contractor.

E15.3 Construction Methods

- (a) Land drainage sewers shall be installed in accordance with CW 2130.
- (b) Selection of excavation equipment for installation of sewers by trenchless methods shall be the responsibility of the Contractor and shall be made based on expected soil conditions inferred from the geotechnical report (see Appendix B). Trenchless Sewer Construction may be by any suitable Tunneling method that meet the design objective.

E15.4 Submittals

- (a) **Shaft Construction** - No shaft construction may proceed without approved shop drawings in accordance with E4 sealed by an Engineer licensed in the Province of Manitoba.
 - (i) Shaft Shop Drawings shall demonstrate at minimum:
 - ◆ Shoring design meets all Province of Manitoba regulations.
 - ◆ Shoring is satisfactory to support soil, active and construction loading.
 - ◆ Excavation space permits the effective installation of the planned trenchless works and other design elements shown on the Drawings.
 - (ii) **Thrust Support** - Where shafts are used for Tunnelling, the shop drawings shall identify the anticipated thrust and shall consider the interaction of the thrust with respect to shoring, existing soil conditions, utilities, or other site-specific items.
- (b) **Jacking Pipe** – Pipe is being installed by Pipe Jacking, the Contractor shall submit shop drawings sealed by and Engineer in the Province of Manitoba demonstrating that the pipe can support the selected installation method in accordance with E15.3(b).
 - (i) The submission shall include the design calculations for the specific drive lengths, depth, soil conditions and materials selected.
- (c) **Grade Control** - The Contractor shall provide a submission demonstrating the method of grade control used on their tunnelling equipment. Contractor shall demonstrate that their grade control can be used effectively for their proposed drive lengths.
- (d) **Quality Control Survey** – Where Tunnelling methods are being used the Contractor shall provide a submission demonstrating their Quality Control plan for measuring the grade and alignment of the new pipe with respect to the design. The submission shall explain the method to be used to survey the pipe (separate from the Grade Control). The frequency of quality control shall at minimum be as follows:
 - (i) 10 m
 - (ii) 30 m
 - (iii) 60 m

- (iv) 100 m and every subsequent 50 m lengths
- (e) Contractor to submit QC data to the Contract Administrator on a daily basis or as soon as practicable.
- (f) Frequency shall increase at the discretion of the Contract Administrator if the Contractors QC survey deviates from allowable tolerances in the Specifications.
- (g) Contractor to allow the Contract Administrator access to complete Quality Assurance surveys of completed Work as required.

E15.5 Measurement and Payment

- (a) Measurement and payment for trenchless sewer construction shall be in accordance with CW 2130 for the diameter, class, bedding and backfill requirements listed on the Form B with the supplemental items listed below:
 - (i) Excavation, Bedding and Backfill, as described in E13, are incidental to Trenchless Sewer Construction.
 - (ii) Surface Restorations, as described in E25, are incidental to Trenchless Sewer Construction.
 - (iii) Payment for the temporary or permanent relocation of existing utilities, and or temporary support of existing utilities required for the placement of shafts shall be incidental to Trenchless Sewer Construction as specified in E30.
 - (iv) Cost of shaft construction and associated shoring required for the installation of the works described herein, is incidental to Trenchless Sewer Construction.
 - (v) Methods for dealing with and paying for trenchless excavation obstructions are shown in Section E31.

E16. LARGE DIAMETER MANHOLES

E16.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers and shall cover the installation of large diameter manholes and large diameter drop manholes.
- (b) For the purposes of this specification, large diameter manholes are those sized to accommodate pipe larger than 525 mm as shown on the Drawings.

E16.2 Materials

- (a) Precast concrete sections and adjusting rings, ladder rungs, joint gaskets and cast iron frames and covers shall be in accordance with CW 2130 and as shown on the Drawings.

E16.3 Submittals

- (a) Submit shop drawings for each manhole size listed on the Drawings in accordance with E4.

E16.4 Construction Methods

- (a) Manhole installation as per CW 2130 and as shown on the Drawings.
- (b) Manhole benching shall be completed in the field and approved by the Contract Administrator. All surfaces shall slope to the manhole outlet and the channel shall extend from inlet to outlet. Benching shall be constructed as follows:
 - (i) Depth of bench to invert: minimum one-half of largest pipe diameter.
 - (ii) Slope of invert bench: 4% minimum; 12% maximum.

E16.5 Method of Measurement and Basis of Payment

- (a) Large Diameter Manholes

Construction of large diameter manholes shall be measured on a vertical metre basis for each diameter of "Large Diameter Manhole" listed on Form B: Prices by base diameter,

base height, and associated riser sections. The price shall include, but not be limited to, excavation, shoring, backfill, reducers, adjusting rings, frames and covers, benching, rungs, couplings and all appurtenances, and miscellaneous metals and materials.

E17. PRECAST CONCRETE STRUCTURES

E17.1 Description

(a) This Specification will cover supply, installation and associated construction Works of the following Precast concrete chamber:

- (i) Combined Sewer Crossing Structure
 - ◆ Rectangular Concrete Manholes (MH 211 and MH 212)
 - ◆ 2400 x 1200 Box Culvert
- (ii) Rectangular Concrete Manhole east of Nathaniel Street (MH 210)

E17.2 Submittals

(a) Submittals shall be made in accordance with E4 and as listed below.

- (i) Work plan detailing sequence of construction, personnel, access, means to transport and place steel, concrete and CLSM, and durations for each element of the work plan.
- (ii) Provide a site specific safety plan for dealing with confined space, including but not limited to, access, egress, air monitoring, ventilation and rescue procedures.

E17.3 Quality Assurance

(a) Qualifications of Precast Manufacturers:

- (i) Manufacturer: Certified to Canadian Precast / Prestressed Concrete Institute (CPCI) Certification Program.
- (ii) Precast Concrete and Precast Prestressed Concrete: Product of manufacturer with 3 years' experience producing precast concrete products of quality specified.
- (iii) Precast Plant: PCI certified plant with current certification.
- (iv) Precast manufacturers with apparent capability to meet these Specifications:
 - (i) Lafarge
 - (ii) Inland Pipe
- (v) Calculations stamped and signed by an engineer registered in the same province as the Project.

E17.4 Materials

(a) General

- (i) Conform to ASTM C478, CSA A257.4 and ASTM C1433.

(b) Concrete Chamber Construction

Class of Exposure	S-2
Maximum Size of Aggregate	19 mm
Cement Type	Type HS (type 50)
Minimum Compressive Strength at 7 Days	20 MPa
Minimum Compressive Strength at 28 Days	30 MPa
Minimum Compressive Strength at 56 Days	32 MPa
Slump/Flow	80 mm +/- 20 mm
Air Content	6.5% +/- 1.5
W/C	0.5

(c) Precast Concrete

- (i) Precast concrete elements shall be as listed on the Drawings.

- (ii) Manhole riser sections shall be in accordance with CW 2130.
- (d) Cast-in-place Concrete:
 - (i) Reinforced concrete for connections and benching shall be in accordance with the requirements of CW 2160

E17.5 Construction Methods

- (a) The Contractor shall install the chamber, including risers, connections to new LDS and benching as shown on the Drawings.

E17.6 Measurement and Payment

- (a) Construction of the Precast Concrete Structures will be paid for at the Contract Price for "Items of Work" listed below and on Form B: Prices. Said price shall be payment in full for supplying all materials and performing all operations herein described and as shown on the Drawings and Details and other items incidental to the Work included in this Specification.

Items of Work:

- (i) **Rectangular Concrete Manholes**
 - ◆ Shall be measured on a vertical metre basis for each size of "Rectangular Concrete Manhole" listed on Form B: Prices by, base height and width, and associated riser sections.
 - ◆ Construction of the Rectangular Concrete Manholes shall include the supply and installation of the manhole as shown on the Drawing including benching, frames, covers, rungs, risers, base and base connections, pipe couplings and connections to new LDS and other accessories and appurtenances.
 - ◆ Construction of connections of the chamber to all new LDS piping are incidental to the construction of the Rectangular Concrete Manholes.
- (ii) **Concrete Box Culvert**
 - ◆ Shall be measured on a linear metre basis for each size of "Concrete Box Culvert" listed on Form B: Prices by span and rise.
 - ◆ Connections to Rectangular Box Manholes is incidental to the cost of the Rectangular Concrete Manholes.
- (b) The cost of shaft construction associated shoring and control of groundwater required to facilitate the installation of the Works described herein shall be incidental to the Precast Concrete Chamber Construction.
- (c) Excavation, bedding and backfill described in E13 is incidental to the Precast Concrete Chamber.
- (d) Surface restoration described in E25 will be incidental to Precast Concrete Chamber.

E18. CAST-IN-PLACE CONCRETE CONSTRUCTION

E18.1 Description

This specification shall cover construction of cast-in-place concrete and shall supplement, revise and amend CW 2160.

E18.2 Materials

- (a) Concrete Design
 - (i) Proportioning of fine aggregate, coarse aggregate, cement, and water for cast-in-place concrete shall be as follows:
 - ◆ Cement Type: HS
 - ◆ Minimum Compressive Strength @ 28 days: 30 MPa
 - ◆ Maximum coarse aggregate size: 19 mm
 - ◆ Maximum Water/Cement ratio: 0.45

- ◆ Slump (Before Plasticizing): 80 mm +/- 30 mm
- ◆ Slump (After Plasticizing): 150 mm +/- 30 mm
- ◆ Air entrained content: 4%-7%
- (ii) All admixtures must be compatible and meet the following standards:
 - ◆ Air entraining agents to ASTM C260
 - ◆ Chemical admixtures (water reducing) to ASTM C494
 - ◆ Type F high-range water reducing (super-plasticizing) admixture shall be used when a slump of more than 110 mm is desired.
- (b) Lean-Mix Concrete Design
 - (i) Proportioning of fine aggregate, coarse aggregate, cement, and water for lean mix concrete shall be as follows:
 - ◆ Cement Type: HS
 - ◆ Minimum Compressive Strength @ 28 days: 15 MPa
 - ◆ Slump: 80 mm
 - ◆ Air Content: nil
 - ◆ Minimum Cement Content = 240 kg/m³
 - ◆ Maximum Water/Cement Ratio = 0.49
 - (c) Grout
 - (i) Grout shall be Sika Grout 212 or approved equal in accordance with B6.
 - (d) Reinforcing Steel
 - (i) Reinforcement is new deformed billet steel bar conforming to CSA G30.18 (Latest). Grade 400.
 - (ii) Unless noted otherwise, reinforcement clear concrete cover distances shall be a minimum of:
 - ◆ 75 mm for concrete cast against earth.
 - ◆ 50 mm for all other concrete.
 - (iii) Reinforcing steel shall be clean, free of rust, dirt, loose scale, oil, grease or any material that could reduce bond with the concrete.
 - (e) Water stop shall be SikaSwell S-2 (Hydrophilic Polyurethane Sealant) extrudable swelling water stop or approved equivalent in accordance with B6.

E18.3 Measurement and Payment

- (a) Cast-in-place concrete will be considered incidental to the Work listed in individual Part E specifications and shall be included in the associated price for each applicable item. No direct measurement for payment will be made for this item.

E19. CONNECTION TO LARGE DIAMETER LDS PIPE

E19.1 Description

- (a) Connection to existing LDS pipe will be required at existing 2,400 mm stub at the Wilton and Taylor Intersection. A reinforced concrete collar will be required for the connection. All concrete and connection work in this project, materials and construction methods, shall be according to the Drawings, Details and this Specification.

E19.2 Materials

- (a) Concrete Mix Design
 - (i) Concrete mix design and steel reinforcement shall be as indicated on the Drawings and in accordance with E18.
- (b) Cold Weather Requirements
 - (i) Cold weather requirements shall be in accordance with E21.

E19.3 Construction Methods

E19.3.1 Exposure of Existing Pipe

- (a) Contractor shall carefully remove existing backfill surrounding the 2400 mm LDS pipe to allow for connection to the new LDS pipe.

E19.3.2 Cast in place Concrete Construction

- (a) Construct cast in place concrete in accordance with CW 2160, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the Drawings.
- (b) Do not use welded splices for reinforcing steel.

E19.3.3 Backfill

- (a) Place and compact backfill material as indicated on the Drawings and in accordance with CW 2030.
- (b) Do not place backfill material in a frozen state.
- (c) Supply heating and hoarding in accordance with CW 2160 if required to ensure material does not freeze before compaction is complete.
- (d) Notify the Contract Administrator at least one (1) full Working Day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.

E19.4 Measurement and Payment

- (a) Connection to 2,400 mm LDS pipe will be measured on a unit basis and paid for at the Contract Unit Price for "Connect to 2400 mm RCP LDS Stub near Wilton Street/ Taylor Avenue with Concrete Collar". Said prices shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.
- (b) Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete, and no measurement or payment will be made for this item.

E20. SEWER SEPARATION (RECONNECTION OF SEWER SERVICES / CATCH BASINS/ INLETS)

E20.1 Description

- (a) This Specification supplements and amends City of Winnipeg Standard Construction Specification CW 2130 Gravity Sewers, and shall cover the connection of catch basins, catch pits and catch basin/pit leads, private LDS sewers and roof drain sewer services to the new land drainage sewers.
- (b) It is the intent to reuse existing catch basins/catch pits/inlets wherever possible. If at the discretion of the Contract Administrator, the condition of existing catch basins/catch pits/inlets are deemed to require replacement, then the catch basins/catch pits/inlets shall be replaced in accordance with CW 2130.

E20.2 Materials

- (a) Materials shall be as per the City of Winnipeg Approved Products List, or an approved equivalent as per E4.
 - (i) Saddles to connect PVC to PVC LDS piping may be used in accordance with CW 2130.
 - (ii) Insert a Tee to connect PVC sewer services to concrete LDS piping may be used in accordance with CW 2130.

E20.3 Construction Method

- (a) Construction of new Catch Basins as described in section 3.8 of CW 2130.
- (b) Connection of existing or new Catch Basin leads to the new Land Drainage Sewer as described in sections 3.10, 3.16 and 3.18 of CW 2130.

E20.4 Measurement and Payment

- (a) The connection of new Catch Basin Leads to the new LDS pipe shall be paid under the Contract unit price for "Connect Catch Basin Lead to LDS Pipe" and will be measured on a per unit basis for each connection made. The price shall be payment in full for performing all operations herein described and all other items or accessories incidental to the Work included in this Specification and shown on the Drawings.
- (b) The connection of new Catch Basin Leads to existing Catch Basins and Catch Pits shall be paid under the Contract unit price for "Connection to Existing Catch Basin and Catch Pit" and will be measured on a per unit basis for each connection made. The price shall be payment in full for performing all operations herein described and all other items or accessories incidental to the Work included in this Specification and shown on the Drawings.
- (c) The connection of existing sewers or Catch Basin Leads to new manholes shall be paid under the Contract unit price for "Connect Existing Catch Basin Lead to Manhole" and will be measured on a per unit basis for each connection made. The price shall be payment in full for performing all operations herein described and all other items or accessories incidental to the Work included in this Specification and shown on the Drawings.
- (d) Supply and installation of Catch Basins will be measured and paid for in accordance with section 4.4 of CW 2130.
- (e) Supply and installation of CB lead risers will be measured and paid for in accordance with section 4.7 of CW 2130.
- (f) Supply and installation of CB lead pipe will be measured and paid for in accordance with Section 4.5 of CW 2130.
- (g) Supply and installation of private LDS sewer piping will be paid in accordance with E15.
- (h) The cost of any shaft and associated shoring required to undertake the Work described herein is considered incidental to the "Connection of Catch Basin Lead to LDS Pipe".
- (i) Repairs of any damage to the LDS pipe resulting from the Work shall be made at no additional cost.
- (j) All catch basin hood replacements to be incidental to the Catch Basins connections.

E21. COLD WEATHER REQUIREMENTS

E21.1 Description

- (a) Should any concrete Work be required to be carried out when the mean daily temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be required as specified herein.
- (b) All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.

E21.2 Construction Methods

- (a) The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional expense to the City;
 - (i) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for 24 hours minimum prior to concreting. Where

concrete Work is to come in contact with the ground, the surface of the ground shall be completely free of frost when concrete is placed thereon.

- (ii) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.
- (iii) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
- (iv) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection they propose to employ.

E21.3 Measurement and Payment

E21.3.1 Cold weather requirements shall be considered incidental to the construction of cast-in-place concrete and no measurement or payment will be made for this item.

E22. EXISTING SEWER AND CATCH BASIN CLEANING AND INSPECTION

E22.1 Existing Sewers, Manholes, Catch Basins and Curb and Gutter Inlets as identified herein shall be cleaned prior to inspection in accordance with CW 2140.

E22.2 Existing sewers to be abandoned or retained to direct land drainage to the LDS system, shall be cleaned and inspected prior to abandonment or reconnection to confirm there are no active service connections. Manhole cleaning will be included as part of sewer cleaning in accordance with CW 2140 Clause 4.4.

E22.3 No payment shall be made for CCTV inspection of existing combined sewers following catch basin lead abandonment.

E22.4 Contractor shall perform pre-construction and post-construction video inspections of all combined sewers adjacent to proposed tunneling shafts in accordance with CW 2145. The limits of Video inspection shall extend ten (10) meters beyond the length of the adjacent shaft wall. Coding of video inspection is not required. This Work shall be paid following the completion of the Pre-construction and Post-Construction sewer inspections for each location for "Pre-Construction Sewer Inspection" and "Post-Construction Sewer Inspection"

E22.5 Existing Catch Basins and Curb Inlets to be connected to the new land drainage sewer system sewer shall be cleaned prior to visual inspection to determine if the units need to be replaced or rehabilitated. This Work must be completed before replacement units are ordered. This Work shall be measured on a unit basis for each Catch Basin or Curb and Gutter Inlet cleaned and paid for at the Unit Price for "Existing Catch Basin Cleaning and Inspection".

E23. REPAIRS TO EXISTING SEWER AND WATER SERVICES

E23.1 Description

- (a) Regrading of existing sewer or water services that conflict with the proposed sewer installation may be necessary. To minimize the potential for damaging existing services, sewer and water services shall be located in accordance with E10 prior to trenchless sewer installation and associated construction (shafts or otherwise).

E23.2 Construction

E23.2.1 The Contractor will immediately inform the Contract Administrator of any damage to services and cease all Work in the vicinity. The Contract Administrator will inform the Contractor of the resultant investigation and instruct the Contractor to perform sewer repair Works in accordance with CW 2130 and Water service repairs in accordance with CW 2110.

E23.2.2 Sewer Service Repair and Replacement

- (a) The regrading or repair of existing sewer services shall be done in accordance with CW 2130.
- (b) The Contractor shall install insulation in accordance with CW 2110 where the sewer service is installed with cover less than 2.5 m, or as directed by the Contract Administrator.

E23.2.3 Water Service Repair and Replacement

- (a) The Contractor shall attempt to adjust the water service pipe without cutting into the pipe to reroute it around the new sewer.
- (b) The repair of damaged water service pipes shall be undertaken in accordance with CW 2110. The repair shall comply with the standard City of Winnipeg practice of allowing only one union per service, and fully renewing the remainder of the service to the main or to the curb stop (whichever is shorter). Existing corporation stops, curb stops, and boxes may be reused if in good condition and if compatible with the service pipe.
- (c) The Contract Administrator must be notified if any of the water service piping encountered is not copper. If water services requiring regrading are found to be made of lead, then the service shall be fully renewed with minimum 19 mm copper water services, including new saddle and corporation stop at the main, new curb stop and box. Connect new copper water service to existing lead service with a suitable flange copper to lead adapter.
- (d) The Contractor shall install insulation in accordance with CW 2110 where the water service is installed with cover less than 2.5 m, or as directed by the Contract Administrator.

E23.3 Measurement and Payment

- (a) Repair or regrading of existing sewer service will be measured and paid for on a per unit basis for regrading up to 1.5 m long and on a linear meter basis for regrading sections of sewer service longer than 1.5 m at the Provisional Contract unit prices for "Regrading of Existing Sewer Service".
- (b) The replacement of water services including connections shall be measured and paid for on a linear meter basis for each size classification at the Provisional Contract unit prices for "Water Service Replacement".
- (c) Supply and installation of new curb stops shall be measured and paid on a unit basis for the same size classifications identified for water service piping and at the Provisional Contract unit prices for "Curb Stop".
- (d) Supply and installation of new curb stop boxes shall be measured and paid on a unit basis for the same size classifications identified for water service piping and at the Provisional Contract unit prices for "Curb Stop Box".
- (e) Supply and installation of new corporation stops shall be measured and paid on a unit basis for the same size classifications identified for water service piping and at the Provisional Contract unit prices for "Corporation Stop".
- (f) Connecting to existing water services will be included in the installation of water service piping.
- (g) No payment will be made for repairs required for damages caused due to Contractor carelessness or as a result of insufficient utility exploration.

E24. TEMPORARY SURFACE RESTORATIONS

E24.1 General

- (a) This specification applies to temporary surface restoration Work.
- (b) Further to clause 3.3 of CW 1130 where permanent surface restorations cannot be made due to cold weather, the Contractor shall temporarily restore surfaces.

E24.2 Execution

- (a) Backfill under Temporary Surface Restoration
 - (i) Backfill and level boulevards and grassed areas to match existing surface elevations.
 - (ii) Use Class 2 backfill in excavations under temporary street pavement and sidewalks where Class 3 backfill cannot be jetted and flooded due to cold weather.
 - (iii) Class 2 backfill may be compacted in 600 mm lifts where backhoe operated pneumatic plate compactors are used.
 - (iv) Jet and flood Class 2, Class 3 and Class 5 backfilled excavations in spring when ground is not frozen prior to permanent restoration.
- (b) Temporary Surface Restoration
 - (i) Cap excavations in concrete pavement with a 100 mm layer of concrete for "Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310.
 - (ii) Cap excavations in sidewalk pavement with a 50 mm layer of concrete for "Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310.
 - (iii) Insulate temporary concrete as required during the 48-hour curing period.
 - (iv) Where curb has been removed as part of the pavement cut pour temporary curb using "Concrete for Temporary Restoration of Utility Pavement Cuts" as specified in CW 3310.
 - (v) Remove all temporary pavements prior to permanent restorations.
- (c) Maintenance
 - (i) The Contractor shall monitor and maintain temporarily restored surfaces as required until permanent restoration is complete.
 - (ii) If, in the opinion of the Contract Administrator, temporarily restored surfaces are not being adequately maintained or were not properly constructed and pose a danger to the public, maintenance or reconstruction will be done by the City forces with no advance notification the Contractor.
 - (iii) All costs associated with the maintenance or reconstruction of temporary pavement incurred by the City shall be deducted from future payments to the Contractor.

E24.3 Measurement and Payment

- (a) Temporary restoration associated with the shafts locations and identified utility relocations on the Form B will be paid on a square meter basis at the Provisional Contract unit price for "Temporary Surface Restorations".
- (b) No extra payment will be made for the installation of Class 2 backfill under temporary street pavement and sidewalk.
- (c) No measurement or payment will be made for the temporary restorations of boulevards and grassed areas.
- (d) No measurement or payment will be made for the removal of temporary pavement prior to permanent restoration.

E25. PERMANENT SURFACE RESTORATIONS

E25.1 Description

- (a) This specification identifies the requirements for permanent surface restorations.
- (b) The specification amends Surface Restorations defined in CW 2130 and places the cost of permanent surface restorations upon the Work item being undertaken.

E25.2 General Requirements

- (a) Permanent surface restoration shall take place as soon as possible following the completion of backfill, but within a maximum two (2) weeks after completion of backfill.

E25.3 Pavement Restoration Requirements

- (a) The Contractor will follow the most recent version of the City’s Street By-law No. 1481/77 and Street Cuts Manual for all pavement restoration unless otherwise shown on the drawing or specifications or as directed by the Contract Administrator.
- (b) The Street Classification and Surface Type within the project Work area are classified as follows:

Street Name	Segment	Pavement Type	Condition
Taylor Avenue	Wilton Street to Nathaniel Street	Asphalt over Concrete	Good
Taylor Avenue (westbound lanes)	Nathaniel Steet to Poseidon Bay	Asphalt over Concrete	Good
Taylor Avenue (eastbound lanes)	Nathaniel Steet to Poseidon Bay	Concrete	Good
Nathaniel Street	Taylor Avenue to Hector Ave	Asphalt over Concrete	Fair
Poseidon Bay	Taylor avenue to Ebby Avenue	Asphalt over Concrete	Fair
NOTE: Values were obtained from the City of Winnipeg Street Conditions Map available at http://winnipeg.ca/publicworks/maps/streetconditions.asp and may not reflect existing conditions.			

- (c) All street segments within the Work area impacted by the Work as determined by the Contract Administrator shall be maintained and restored with the following additional requirements.
 - (i) Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to the initiation of Work.
 - (ii) Review and record the condition of each street segment with the Contract Administrator and a City Representative from Public Works prior to surface restoration. The surface restoration required for each street segment will be agreed upon at this review meeting.

- (d) Pavement Restoration Guidelines from the City of Winnipeg Street Cuts Manual are summarized below:
- (i) Asphalt & Asphalt over concrete

Rated Pavement Condition of Segment	Regional (Priority I)		Collector (Priority II)		Local (Priority III)	
	Action Required	Responsibility	Action Required	Responsibility	Action Required	Responsibility
New	Grind & repave full lane width & length of project or excavation	Utility conducting work	Grind & repave full lane width & length of project or excavation	Utility conducting work	Grind & repave full lane width & length of project or excavation	Utility conducting work
Good						
Fair	Decision after inspection by Public Works Department See Note (A-2)		Decision after inspection by Public Works Department See Notes (A-2) & (A-3)		Decision after inspection by Public Works Department See Notes (A-2) & (A-3)	
Poor			Isolated repairs accepted	Utility conducting work	Isolated repairs accepted	Utility conducting work

- (ii) Portland cement concrete

Rated Pavement Condition of Segment	Regional (Priority I)		Collector (Priority II)		Local (Priority III)	
	Action Required	Responsibility	Action Required	Responsibility	Action Required	Responsibility
New	Full panel repair	Utility conducting work	Full panel repair	Utility conducting work	Full panel repair	Utility conducting work
Good						
Fair	Decision after inspection by Public Works Department See Note (B-2)		Decision after inspection by Public Works Department See Note (B-2)		Decision after inspection by Public Works Department See Note (B-2)	
Poor			Isolated repairs accepted	Utility conducting work	Isolated repairs accepted	Utility conducting work

E25.4 Methods

- (a) The Contractor shall permanently restore all existing surface areas disturbed by construction activities including, but not limited to, areas disturbed by construction of Works shown on the Drawings, construction equipment, placement of equipment and trailers, and material laydown areas, shall be restored as follows:
- (i) Boulevards, ditches and grassed areas - sodding using imported topsoil in accordance with CW 3510. The Contractor shall restore all areas disturbed during construction to existing condition or better, using topsoil and sod at its own cost.

- (ii) Asphalt surfaces – match existing base course and asphalt thickness or a minimum of 150 mm of base course and 75 mm of Type 1A Asphaltic Concrete, whichever is greater, in accordance with CW 3410.
 - (iii) Miscellaneous concrete slabs, including sidewalk - in accordance with CW 3235
 - (iv) Interlocking stones – in accordance with CW 3330.
 - (v) Concrete curb and gutter – in accordance with CW 3240.
 - (vi) Trees - requiring replacement due to construction activities (as directed by the Contract Administrator) shall be installed in accordance with CW 3510 and as per E26.
 - (vii) Topsoil - All Topsoil Work shall be performed in accordance with CW 3510. Topsoil Work shall include all existing grassed areas disturbed by the Contractor during construction. The Contractor shall restore all areas disturbed during construction to existing condition or better, using topsoil and sod at its own cost.
- (b) Pavement surface restorations shall be in accordance with E25.3(d) and based on the condition of the existing pavement listed in E25.3(b):
- (i) Pavement restorations to Taylor Avenue shall use early opening concrete and have a depth of 200 mm or as agreed with Contract Administrator.

E25.5 Measurement and Payment

- (a) This specification amends CW 2130 such that:
- (i) All costs associated with Permanent Surface Restorations as described herein are incidental to the Work items for the Work activity being carried out, including but not limited to Trenchless Sewer Construction, installation of Manholes, installation of Catch Basin Leads, Connecting of Catch Basin Lead, Catch Basin, Catch Pits or Manholes, Sewer Service, and Watermain, and other works shown on the Drawings. No payment will be made for restoring the roadways from these Works.
 - (ii) Permanent pavement repairs for provisional items not identified on the Drawings including sewer and water service regrading will be paid out in accordance with the pavement unit prices listed in the provisional items of the Form B: Prices.

E26. TREE PLANTING

E26.1 Description

- (a) This Specification shall cover the installation of new trees to replace trees removed as a direct requirement of the Work shown on the Drawings. Trees removed as part of the development of a Contractor's laydown areas will not be covered under this specification and are to be considered part of E7 Site Development and Restoration.
- (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead labour, materials, and all other things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.
- (c) The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification.

E26.2 Materials

- (a) Trees
 - (i) Trees shall consist of native species approximately 75 mm in diameter. The number and species of trees to be planted will be based on the number and species of trees removed during construction and will be determined by the Contract Administrator.

E26.3 Construction Methods

- (a) Trees
 - (i) The trees shall be planted in the general vicinity of where trees were removed prior to the commencement of Works or as directed by the Contract Administrator.

(b) Quality Control

(i) Inspection

All workmanship and all materials furnished and supplied under this Specification are subject to close and systematic inspection by the Contract Administrator including all operations from the selection of materials through the final acceptance of the specified Work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection of approval that may have been previously given.

(ii) Access

The Contract Administrator shall be afforded full access for the inspection of materials at the site to determine whether the material is being selected and placed in accordance with this Specification.

E26.4 Measurement and Payment

- (a) Replacement of trees removed as a direct impact of the Work shown on the Drawings will be paid at the Provisional Contract unit price of "Tree Planting" for each tree planted in accordance with this Specification.

E27. ALLOWANCE FOR VIBRATION MONITORING

E27.1 There is potential that construction activities will have a negative impact causing vibration and damage to surrounding structures (above and below grade). Inspections and monitoring may be required to mitigate the severity of the damage.

E27.2 Description

- (a) The Contractor is advised that vibration monitors are required to be installed by a suitable testing company for this Contract.
- (b) Monitoring instruments will be set up on structures near shaft locations and construction activities at the discretion of the Contract Administrator.
- (c) While a current by-law on acceptable vibrations does not exist for the City of Winnipeg, the monitoring data should be compared to the California Department of Transportation and Construction Guidance Manual (September 2013) which presents probabilistic damages thresholds.
- (d) The Contractor should select construction methods that they feel results in a vibration tolerance limit that they deem is an acceptable risk.

E27.3 Construction Methods

- (a) The Contractor or their designate shall complete a pre-construction photographic survey of the existing structures adjacent to the Work (and for which vibration monitors may be installed upon).
- (b) Where the Contractor is entering properties to undertake the photographic survey notices shall be provided to the businesses or homeowners in advance to arrange for interior inspections. Notices will need to be approved by the Contract Administrator and the City. Any individuals entering into a private residence or meeting private citizens as part of this Work shall have first submitted their security clearances to the Contract Administrator in accordance with Part F of these specifications.
- (i) The photographic survey should provide a record of foundation, interior walls, door and window frames, existing cracks and other features.
- (c) Vibration monitors should be installed in or adjacent to structures. The monitors should be capable of measuring 0 – 250 mm/sec, continuously. Where data storage permits continuous monitoring, the data should be downloaded periodically to provide sufficient storage for continuous monitoring.
- (d) The vibration monitoring will be set up prior to any construction activities to ensure a baseline reading is developed.

- (e) Data should be recorded and provided to the Contract Administrator.
- (f) The collected data shall be made available and be provided to the homeowners or business owners adjacent to the Work upon request.
- (g) Following construction activities, the Contractor shall arrange for a post construction inspection of any business or residences where preconstruction inspections were undertaken.

E27.4 Measurement and Payment

- (a) The cost for the building inspections and vibration monitors shall be paid for under the Contract unit price for "Allowance for Vibration Monitoring". Costs will be based on actual invoiced costs for inspections, equipment, and monitoring with allowable mark-ups in accordance with the General Conditions.

E28. ALLOWANCE FOR MATERIAL SAMPLING AND TESTING

E28.1 Description

- (a) Further to CW 3110 and CW 3410 this specification shall cover additional inspection and testing requirements for all materials used in the Work associated with this Tender (Contract 6B).
- (b) The Contractor shall be responsible to schedule, coordinate and provide material testing, including test reports, for all construction materials as outlined in CW 2110, CW 2130, CW 3110, CW 3410, other relevant City specifications, and the additional specifications within this Bid Opportunity. The Contractor shall engage an independent material inspection and testing agency for the purpose of conducting these material tests and obtaining associated documentation when directed by the Contract Administrator.

E28.2 Construction Methods

- (a) The Contractor shall be responsible for scheduling field test with an independent material inspection and testing Agency. All material tests conducted on Site shall be attended by the Contract Administrator. It is the Contractor's responsibility to coordinate each of the scheduled tests with the Contract Administrator.
- (b) The contact information from the Contract Administrator and City staff shall be provided to the testing agencies and all test results from all laboratory and field tests shall be provided to the Contract Administrator for review and/or approval.
- (c) Copies of invoices from the testing agencies shall be provided monthly to the Contract Administrator.

E28.3 Measurement and Payment

- (a) The cost for material sampling and testing shall be paid for under the Contract unit price for "Allowance for Material Sampling and Testing". Costs will be based on actual invoiced costs for inspections, equipment, and monitoring with allowable mark-ups in accordance with the General Conditions.

E29. MAINTAINING FLOW IN EXISTING 750 COMBINED SEWER MAIN

E29.1 Description

- (a) The specification covers the requirement of the Contractor to maintain sewer flow in the existing 750 mm combined sewers that is impacted by the installation of the Combined Sewer Crossing Structure (the box culvert between MH 211 and MH 212).
- (b) Maintaining Flow in the existing sewer shall be in accordance with City Specification CW 2130 and as listed here.
- (c) The Contractor may identify their method for controlling the flows, this includes construction of a flume within the excavation or a by-pass pumping arrangement.

- (d) Where by-pass pumping is selected to control dry weather flow of 0.012 m³/s, the Contractor must provide redundant pumps and a back-up power supply to ensure that the sewer flows are controlled to the existing peak dry weather flow of the pipe network; and so the combined sewer system is not at risk to elevated levels causing basement flooding.
- (e) Expected flows for dry weather flows and specific rain events flows is provided in the table below.

Parameter	DWF	1 year	2 year	5 year
Peak Flow (m ³ /s)	0.012	2.544	4.852	6.164
Peak Velocity (m/s)	0.176	1.587	1.822	1.988

E29.2 Submittals

E29.2.1 Submittals shall be made in accordance with the requirements identified in E4 and as listed below.

E29.2.2 Submit a description of the proposed bypass method which shall include the following, as applicable:

- (a) Diversion
- (i) Size and location of pipe, bends and connections.
 - (ii) Pipe materials.
 - (iii) Procedures to monitor upstream mains for backup impacts.
 - (iv) Procedures for setup and breakdown of diversion.
 - (v) Emergency plan detailing procedures to be followed in event of sewer overflows, service backups, and sewage spillage.
- (b) Pumping
- (i) Size and location of manhole or access points for suction and discharge hose or piping.
 - (ii) Sections showing suction and discharge pipe depth, embedment, select fill and special backfill, if buried.
 - (iii) Temporary pipe supports and anchoring required.
 - (iv) Thrust and restraint block sizes and locations.
 - (v) Sewer plugging method and type of plugs.
 - (vi) Bypass pump sizes, capacity, number of each size to be on site and power requirements.
 - (vii) Backup pump, power and piping equipment.
 - (viii) Calculations for upstream backwater effect to ensure properties upstream are not adversely affected by pumping.
 - (ix) Calculations of static lift, friction losses, and flow velocity. Pump curves showing pump operating range.
 - (x) Design plans and computation for access to bypass pumping locations indicated on drawings.
 - (xi) Calculations for selection of bypass pumping pipe size.
 - (xii) Method of noise control for each pump and/or generator.
 - (xiii) Method of protecting discharge manholes or structures from erosion and damage.
 - (xiv) Schedule for installation and maintenance of bypass pumping lines.
 - (xv) Procedures to monitor upstream mains for backup impacts.
 - (xvi) Procedures for setup and breakdown of pumping operations.
 - (xvii) Emergency plan detailing procedures to be followed in event of pump failures, sewer overflows, service backups, and sewage spillage.

E29.3 Methods

- (a) Schedule and perform work in manner that does not cause or contribute to incidence of basement flooding, overflows, releases or spills of sewage from sanitary sewer system or bypass operation.
- (b) The Contractor shall acquire any permits required from the City for redirecting of flows
- (c) During bypass pumping or diversion operation, protect sewer lines from damage inflicted by equipment.
- (d) Upon completion of bypass pumping or diversion operations, and after the receipt of written permission from the Contract Administrator, the Contractor shall remove or abandon temporary piping installed as part of this specification.

E29.4 Measurement and Payment

- (a) The costs for Maintaining Flow in Existing Sewers is incidental to **Site Development and Restoration** and shall include all work described herein and that is required to complete the Work.

E30. SUPPORT OR TEMPORARY RELOCATION OF EXISTING PIPES AND UTILITIES

E30.1 The size and locations of shafts to facilitate the Work are at the discretion of the Contractor. Infrastructure in conflict with the Contractors proposed construction shafts shall be addressed through this specification.

E30.2 The Contractor shall provide support or temporary relocation of existing services and utilities (including but not limited to water mains, sewer mains, gas mains, and electrical or telecommunication conduit/ducts), when excavations/ shafts expose or require the support of these services (due to proximity or other reasons). Support of the services shall be undertaken to the requirements of the utility owner. Services and utilities may only be interrupted with the permission of the Contract Administrator and the utility owner.

- (a) Where these utilities include buried gas or electrical lines, the Contractor shall contact Manitoba Hydro and follow the Safe Excavation & Safety Watch Guidelines listed at https://www.hydro.mb.ca/safety/pdfs/safe_excavation_safety_watch_guidelines.pdf
- (b) Watermains shall not be temporarily cut and capped unless permission is given by the Contract Administrator and the City.

E30.3 Measurement and Payment

- (a) Relocation or support of existing pipes and utilities to facilitate the LDS sewer installation and associated excavations not identified on the Form B will be incidental to the cost of the LDS sewer installation under Trenchless Sewer Construction.

E31. CHANGE IN CONTRACT CONDITIONS

E31.1 Description

- (a) This specification covers changes to the scope of Work including removal of trenchless obstructions that impact the trenchless sewer construction of pipe greater than 1,200 mm in diameter as defined herein and accepted by the Contract Administrator. For all obstructions that impact the trenchless sewer construction of pipe 1,200 mm and smaller CW 2130 will apply.

E31.2 Construction Methods

- (a) Trenchless Obstruction
 - (i) If an obstruction is encountered that prevents the forward progress of the trenchless sewer construction equipment (for pipe diameters greater than 1200 mm), the Contractor shall notify the Contract Administrator immediately.
 - (ii) Upon written notification by the Contract Administrator, the Contractor shall immediately proceed with removal of the object or obstruction by means of an

obstruction removal shaft or by other approved methods, as submitted by the Contractor in approved submittals.

- (iii) An obstruction removal shaft shall consist of an excavation for removing the obstruction. The shaft size should be sized for the removal of the obstruction and not be unreasonable sized resulting in additional costs.
- (iv) The Contractor shall correct the condition, and remove, clear, or otherwise make it possible for the trenchless installation equipment to advance past any objects or obstructions that impede forward progress.
- (v) The Contractor will receive compensation for removal of obstructions, as defined as metallic debris, reinforced concrete, rocks, and other hard objects larger than 30% of the outer diameter of the shield, which cannot be broken up by the cutting tools with diligent effort, that are partially or wholly within the cross-sectional area of the bore.
 - ◆ Where the shield is the outermost dimension of the advancing equipment, or the outside diameter of the pipe providing excavation support (whichever is larger).
 - ◆ Any removal process that does not allow direct inspection of the nature and position of the obstruction will not be considered for payment.
- (vi) The Contractor will receive no additional compensation for removing, clearing, or otherwise making it possible for the trenchless sewer construction method to advance past objects consisting of cobbles, boulders, wood, non-reinforced concrete, and other non-metallic objects or debris with maximum lateral dimensions less than 30% of the outer diameter of the TBM face.
- (vii) The Contractor will receive no additional compensation for removing, clearing, or otherwise making it possible for the trenchless sewer installation method to advance past existing utilities identified within the path of the sewer Works (whether shown on the Drawings or not).

E31.3 Measurement and Payment

E31.3.1 Where a Contractor has made a claim in accordance with C7, which has been accepted by the Contract Administrator and City, the Contractor will be compensated from the allowance under the Contract unit price "Change in Contract Conditions" in accordance with C7 and the following supplemental conditions:

- (i) Any Works or portions thereof defined by a Contract Unit Price listed anywhere within the Form B Prices shall be paid out at the Contract Unit Price for such Work.
- (ii) Labour rates and material costs associated with the change in contract conditions shall be compensated as per C7.4 (c) and 7.4.1.
- (iii) Equipment rates for equipment required in change in contract conditions shall be compensated based cost of the equipment established in accordance with E31.3.2.
- (iv) Standby equipment that cannot reasonably be deployed elsewhere during the duration of the obstruction removal shall be compensated at 50% of its established rate as noted in E31.3(iii)
- (v) Where the change in contract conditions is the removal of a trenchless obstruction, the first four (4) hours of handling obstructions for each occurrence shall be the responsibility of the Contractor.

E31.3.2 Daily Equipment Costs

- (a) Daily costs for all equipment including, but not limited to, trenchless sewer construction equipment and associated equipment, any soil extraction process/plants, construction equipment/vehicles, Contractor trucks and their staff's personal vehicles, temporary site/storage facilities, generators, rental equipment, and all other ancillary equipment required to undertake the Works, belonging to the Contractor or their sub-contractors shall be paid for at the daily rate under the contract unit price of "Daily Equipment Rate"

- (i) Prior to commencement of the Works, the Contractor shall submit to the Contract Administrator a breakdown of the equipment costs included within the Daily Equipment Rate to be used in assessing delay claims from Change in Work.

E32. PROVISIONAL ITEMS

- E32.1 The Provisional Items listed on Form B: Prices are part of the Contract.
- E32.2 The Contractor shall not perform Work included in the Provisional Items without prior authorization from the Contract Administrator. All Work included in the Provisional Items will be carried out within the construction areas shown on the Drawings.
- E32.3 Notwithstanding C:7, the City reserves the right to diminish all or any portion of the items of Work listed in the Provisional Items and no claim shall be made for damages on the grounds of loss of anticipated profit or for any other reason.
- E32.4 Provisional Items do not form part of the Initial Span calculations.

PART F - SECURITY CLEARANCE

F1. SECURITY CLEARANCE

- F1.1 Each individual proposed to perform Work under the Contract shall be required to obtain a Police Information Check from the police service having jurisdiction at their place of residence. This can be obtained from one of the following;
- (a) police service having jurisdiction at their place of residence; or
 - (b) Sterling BackCheck – for existing account holders, log into your account to send individual invitations to employees requiring security clearance. For those that do not have an account, click on the following link to open an account:
<https://forms.sterlingbackcheck.com/partners/platform2-en.php?&partner=winnipegcity> ; or
 - (c) Commissionaires (Manitoba Division), forms to be completed can be found on the website at: <https://www.commissionaires.ca/en/manitoba/home> ;or
 - (d) FASTCHECK Criminal Record & Fingerprint Specialists, forms to be completed can be found on the website at: <https://myfastcheck.com>
- F1.2 The following is a link to information for obtaining the Police Information Check including the Vulnerable Sector screening from the City of Winnipeg Police Service.
<http://winnipeg.ca/police/pr/PIC.stm>
- F1.2.1 The Police Information Check shall include a Vulnerable Sector Screening. This can be obtained by following the link below <http://winnipeg.ca/police/pr/PIC.stm> .
- (a) Individuals will need to state in the form, that they may be working in City of Winnipeg pools, libraries and community centres;
- F1.3 The original Police Information Check (Form P–612) will be provided by the Winnipeg Police Service to the individual applicant. The original has a validation sticker from the Winnipeg Police Service in the top right hand corner. The applicant shall:
- (a) Provide the original Police Information Check (Form P–612) to the Contract Administrator.
- F1.4 Prior to the award of Contact, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Police Information Check obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform the Work.
- F1.5 Any individual for whom a Police Information Check is not provided, or for whom a Police Information Check indicates any convictions or pending charges related to property offences or crimes against another person will not be permitted to perform any Work.
- F1.6 Any Police Information Check obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.
- F1.7 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at their sole discretion and acting reasonably, require an updated Police Information Check. Any individual who fails to provide a satisfactory Police Information Check as a result of a repeated Police Information Check will not be permitted to continue to perform any Work.